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ABSTRACT

Until recently, the South's economic growth was based on its ability to attract manufacturing jobs. Recent plant closings and layoffs were considered as cyclical effects of a recession, but recovery has not occurred and rural unemployment remains high. In the 1970s, the South was the only region to experience slower population growth in rural areas than in its cities. These trends prompted a study that revealed: (1) long-term economic restructuring is occurring with traditional manufacturing (furniture, food, textiles, apparel) losing employment while services and emerging manufacturing (machinery, electric/electronic equipment, printing/publishing) are growing; (2) employment grew faster in metro areas than in nonmetro areas between 1977 and 1982; (3) the rural South's ability to recover from structural changes in the economy is hampered by its lack of wealth and underdeveloped human resources; (4) between 1977 and 1982, employment grew only half as fast in nonmetro areas as in metro areas; (5) fastest growth occurred in counties with the smallest percent minority populations, highest educational levels and per capita income, most physicians per resident, and with large numbers of in-migrating retirees; and (6) the fastest employment growth occurred in counties dominated by service industries. The compiled evidence suggests that long-term restructuring of the South's economy is occurring, but the nonmetro areas are hampered by: (1) dependence on traditional manufacturing, which is vulnerable to foreign competition and automation; (2) lack of wealth; and (3) low levels of educational attainment. This report contains 21 tables and 46 figures. Appendices include information on data sources, a description of the creation of the Enhanced County Business Patterns File, a list of industry classifications, and a set of graphs showing changes in employment by county location and ranges within categories, of 12 southern states, 1977-1982. (ALL)

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AFTER THE FACTORIES

CHANGING EMPLOYMENT PATTERNS IN THE RURAL SOUTH



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AFTER THE FACTORIES

CHANGING EMPLOYMENT PATTERNS IN THE RURAL SOUTH

by

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Southern Growth Policies Board

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December 1985

Southern Growth Policies Board
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FOREWORD

This report represents an unusual project for the Southern Growth Policies Board in response to an unusual problem. The Board seldom undertakes original research, but, instead synthesizes the basic research of others into policy documents for the governors, legislators, and other leaders of the South. What we began to notice in 1983, however, was the alarming economic decline of the non-metropolitan South, a phenomenon which had not been addressed by researchers and was not being covered by the national media.

The response to our original monograph on this subject, "Prospects for Economic Growth in the Non-Metropolitan South" (SGPB *Alert*, November 1983), was so overwhelming from those out in the rural "trenches" that the Board decided to pursue the subject. The Ford Foundation funded a research project on employment trends in the non-metro South, the final report of which is presented here.

As you will see, the findings of this report confirm our fears for much of the rural South. The impact of the current industrial restructuring, herein reported, has become a major focus for the Board. How to address the consequences of this restructuring will be a major question presented to the 1986 Commission on the Future of the South.

Jesse L. White, Jr.
Executive Director

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The late Bill Linder, former Executive Director of the Southern Rural Development Center, spurred the project with his interest and desire for better information. His successor, Doss Brodnax, continued both with support and advice. Norman Collins, Project Director of the Ford Foundation's Rural Poverty and Resources Division and Katharine McKee, Program Officer, were instrumental in assuring that the project could be completed at the level of detail needed, through both their financial support and their substantive input. Finally, the members of the advisory committee, listed in the appendix, helped define the issues, critique the design, and review the analysis.

Stuart A. Rosenfeld
Project Director
SGPB Director of
Research
and Programs

EXECUTIVE SUMMARY

Up until the last few years, the story of the South's economic growth has been the ability of its nonmetro areas to attract manufacturing jobs. A combination of low operating costs, a surplus labor force, and government programs to build an industrial infrastructure led to more rapid industrialization of the South than of rural areas anywhere else. Though these industries often paid low wages, they did create new employment opportunities and raise per capita income.

Recent events, however, began to signal changes in the South's nonmetro economy. With the country in the throes of a recession and because so much attention was focused on the "rural population turnabout" in the 1970s, these events drew less attention than they might have under different conditions. Plant closings and layoffs in rural areas were dismissed summarily by some as cyclical effects of a recession. This did not, however, appear to be the case.

The global competition and automation which have contributed to reductions in employment levels in traditional manufacturing industries are unlikely to abate, and the new industries being groomed to replace standardized manufacturing favor larger cities because those areas have more of the amenities they seek. Many rural areas have *not* recovered from the recession as they would have if the major cause were simply the business cycle; and rural unemployment rates remain high. Demographic trends in the South also reflect these changes. In the 1970's, the South was the only region to experience slower population growth in rural areas than in its cities.

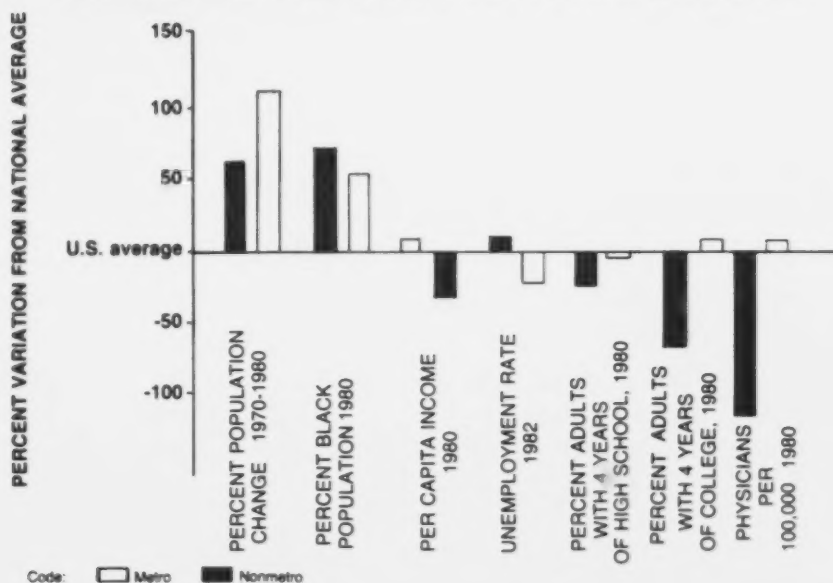
As a result of these ominous trends, the Southern Growth Policies Board sought to provide better information to policymakers about economic conditions in the nonmetro South. With support from the Southern Rural Development Center and the Ford Foundation, SGPB framed a study around the following questions. Is long-term restructuring of the region's economy actually occurring or are observed changes merely short-term consequences of the recession? How do conditions in the nonmetro South differ from conditions elsewhere and what do they portend for future growth? Is location relative to metro centers and interstate highways an important factor in employment growth? Are there demographic and economic characteristics that explain or predict county patterns of growth and decline? How is the industrial composition of counties related to patterns of nonmetro employment growth?

Employment changes do, in fact, indicate that long-term economic restructuring is occurring in the South, both industrially and geographically. "Traditional" manufacturing industries (e.g., furniture, food, textiles, apparel) lost employment while services and certain "emerging" manufacturing industries (e.g., machinery, electric and electronic equipment, printing and publishing) grew in employment. *Employment in virtually all industry sectors grew faster in metro areas than in nonmetro areas between 1977 and 1982.* Even more telling, however, in many states employment in key southern industries grew in metro counties, even as the same industry declined in nonmetro counties.

The rural South's ability to recover from structural changes in the economy is hampered by its lack of wealth and underdeveloped human resources. Comparisons between the nonmetro and metro South and between the nonmetro South and the rest of the nation show stark demographic differences. Despite decades of industrial development, the nonmetro South remains the poorest area of the U.S., and has the lowest levels of educational attainment, the fewest doctors, and the lowest wages, relative to both the metro South and the nation. Although states' efforts and federal anti-poverty programs have

FIGURE I

DEMOGRAPHIC CHARACTERISTICS OF METRO AND NONMETRO SOUTH COMPARED TO UNITED STATES AVERAGE



brought the region nearer to parity, progress seems to have stalled.

To find out how access to metro areas and to major interstate transportation routes affect growth, all nonmetro counties in the SGPB region were grouped into five locational categories, as shown in Figure II: counties adjacent to a metro area, with ("adjacent/corridor") or without ("adjacent") direct access to an interstate highway; counties not adjacent to a metro center, and either along an interstate corridor ("corridor"), near an interstate corridor ("tier"), or distant from an interstate corridor ("remote").

The largest observed difference in the rate of employment growth is between metro and nonmetro areas. (Figure III.) *Between 1977 and 1982, employment grew only about half as fast in nonmetro areas as in metro areas.* Among nonmetro counties, location seemed to have some effect on growth. Counties adjacent to metro areas and with good interstate access grew fastest. But remote counties exhibited the next fastest growth in employment. The relatively strong growth in remote areas was concentrated in most states, however, in a small number of counties with either tourist attractions, energy resources, or large numbers of retirees. Growth rates varied considerably within locational categories, and even in locational categories with strong growth, many counties lost employment.

Some social, demographic, and economic factors clearly were associated with employment growth. *Fastest growth counties had the smallest percent minority populations, highest educational levels and per capita income, most physicians per resident, fastest population growth, and large numbers of in-migrating elders (retirees).* Effects of state and local expenditures for public education were difficult to detect, in part because variations in expenditures among nonmetro counties within the states selected were small. In states with wide variations in education resources among nonmetro districts, high spending counties did grow faster than low-spending counties.

Counties with high growth rates generally had a very different industrial

FIGURE II
DIAGRAM OF COUNTY LOCATION CLASSIFICATION SCHEME

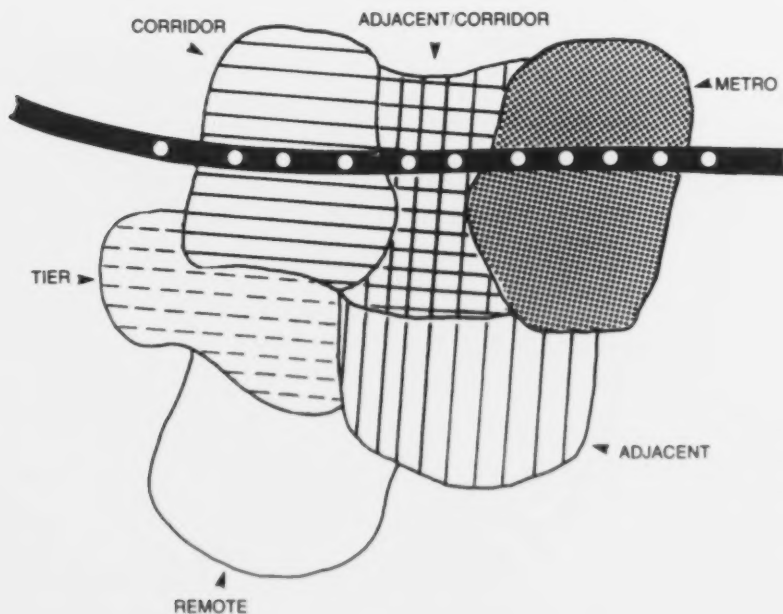
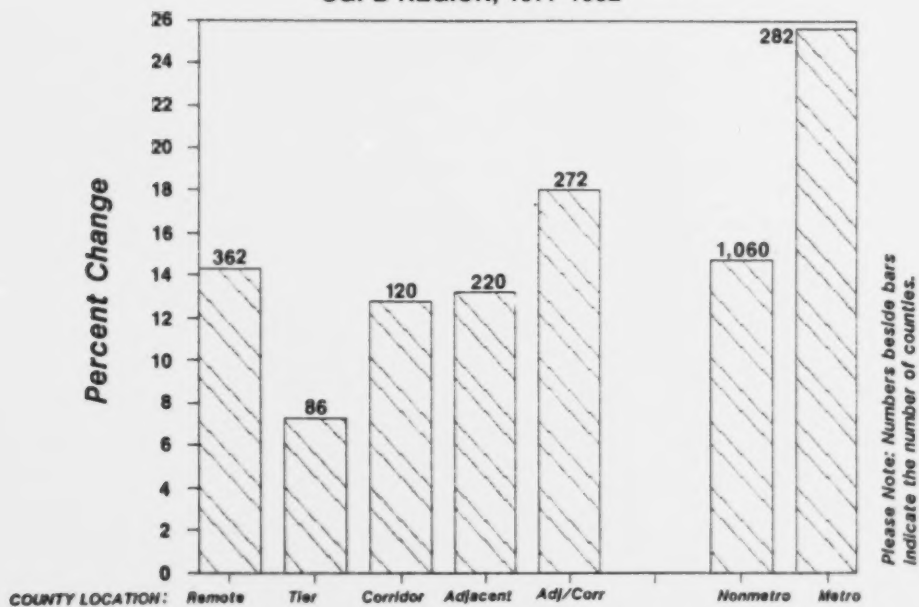


FIGURE III
CHANGES IN EMPLOYMENT BY COUNTY LOCATION
SGPB REGION, 1977-1982



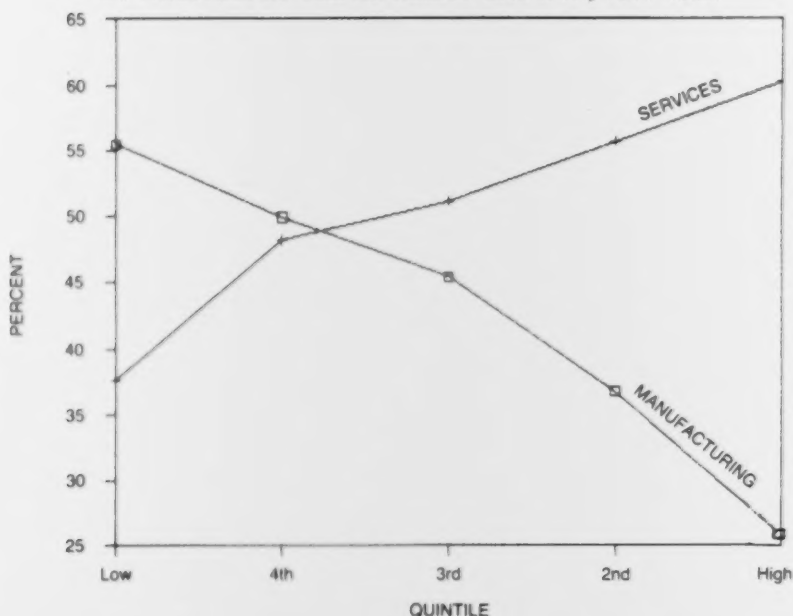
composition from those that either lost employment or grew slowly. As shown in Figure IV, the fastest employment growth occurred in counties dominated by service industries and the slowest growth occurred in counties dominated by manufacturing—particularly traditional nondurable manufacturing. This was true regardless of locational category.

Locational characteristics—access to interstates and proximity to metro centers—influenced the growth of employment in some industries. Durable manufacturing, for instance, was more stable in counties with good access to interstate highways. New technology industries grew predominantly in counties with interstate corridors, but also in remote counties. For some industry clusters, including the various services, construction, and new technology, employment growth in nonmetro counties that are adjacent to metro areas and with good interstate access equalled or exceeded even metro growth rates.

The evidence compiled suggests that long-term restructuring of the region's economy is indeed occurring, resulting in shifts in jobs from nonmetro to metro areas, in shifts among industrial sectors from manufacturing to services, and in shifts within manufacturing from traditional to emerging industries. The impact of these economic changes on the nonmetro South is exacerbated by dependence on traditional manufacturing industries that are highly vulnerable to foreign competition and automation, and its ability to readapt is hampered by its relative lack of wealth and its low levels of educational attainment.

FIGURE IV

PERCENT EMPLOYED IN NONMETRO COUNTIES
MANUFACTURING & SERVICES, 1977
BY QUINTILE OF EMPLOYMENT GROWTH, 1977-1982



Interpretations of the results of the comparisons of rates of growth in this study require an important caveat. As averages of groups of counties and/or industries, they only indicate *general* patterns; high average employment growth among certain kinds of counties does not denote a *uniformly* strong economy, just as low growth does not always correspond to a weak local economy. For example, more than one-fourth of all counties that grew by 30 percent or more

still had unemployment rates of more than 10 percent in 1982. The patterns do, however, suggest trends that deserve attention and point to areas where state policies can cushion the negative impacts of change and reinforce and accelerate positive changes.

I BACKGROUND

After World War II, the South,* marketed its abundant labor, low operating costs and favorable business climate to capture an increasing share of the nation's manufacturing jobs. Industrialization was invigorated by federal policies that helped build an infrastructure to accommodate new growth, which included water and sewage systems, airports, industrial parks, and improved roads to link producers, suppliers, and markets. The interstate highway system was expanded, connecting remote areas with urban centers and creating corridors of business activity. Moreover, as a tactic in the War on Poverty, the federal investment in infrastructure was intended to give priority to the most distressed areas, which included much of the rural South. A large part of the expenditures were for new highways; the Appalachian Regional Commission, for example, spent about \$2.5 billion on a road system to bring jobs and income to Appalachia. With help from federal and state governments, the rural South was transformed from an agriculture-based economy to a manufacturing-based economy.

As late as 1980, national headlines heralded the attractiveness of the rural South to industry. An article published in the *New York Times* in March 1980,¹ featured Nash County, North Carolina and Baxter County, Arkansas, and "experts," who concluded that the dispersion of industry from the cities to the country was no aberration but an outgrowth of historical trends in the American economy. That story credited interstate highways, a surplus labor force, a web of vocational schools, and even reservoirs and artificial lakes, with generating a boom climate in rural areas—particularly in the South.

Since that time, however, new information began to cast doubt on the future of the South's rural economy. As the recession in the early 1980s wore on, the first signals of change were noted in the region's press. While the national news services concentrated on large-scale unemployment in northern industrial cities, a flood of short articles announcing plant closings or major reductions in force began to hit the back pages and business sections of southern newspapers. Even as the net number of jobs in the region grew, reinforcing the Sunbelt success story, there was mounting evidence of decline along with growth in the South. Some southern towns were hit by massive job displacements even as others faced shortages of skilled labor.

By 1983, the Southern Growth Policies Board posited that these signals reflected structural changes in the region's economic base and that, given the nature of the changes, the future of nonmetro economies was not so bright. This assessment was based on conditions unique to the South.

First, the area's demographic trends stand in contrast to trends in the rest of the nation. Although nonmetropolitan population did grow faster in the South in the 1970s than in previous decades, it was the only region in which rural population growth lagged behind urban population growth in the 1970s. Southern cities, with strong and growing economies, continued to attract the majority of the new people. And between 1979 and 1983, the differential growth rate between metro and nonmetro areas increased: the rate of growth of metro areas in the South during those four years was twice the rate of growth of nonmetro areas. Per capita income followed a similar pattern. Per capita income growth rates for metro and nonmetro areas were about the same in the 1970s,

* In this report the terms "South" and "SGPB" states refer to Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. (Texas is not a member of the Southern Growth Policies Board at present.) Puerto Rico, a member of SGPB, was not included because comparable data were not available.

but between 1979 and 1983 per capita income in metro counties grew 17 percent faster than in nonmetro counties.

Second, industrial growth patterns put the rural South's economy on precarious footing. Success in attracting branch plants created an economic base that was much more heavily industrialized than other rural regions. Nonmetro areas in the South were twice as dependent on manufacturing industries for jobs as were southern metro areas; and the nonmetro South was more dependent on manufacturing than either the metro or nonmetro areas outside of the South. Because so many of these industries were labor-intensive and had low skill requirements, southern nonmetro areas were especially vulnerable to increasing competition with other countries for products and jobs. Unlike the North, where unemployment was high in many of its large cities, unemployment in the South was more likely to occur in nonmetro areas. In Georgia, for example, in February 1982 the nonmetro unemployment rate was 33 percent higher than the metro rate, despite the fact that nonmetro unemployment rates are more likely to be undercounted.² Moreover, in the South many plants closed with little warning, leaving communities with little time to plan economic alternatives. One textile plant in North Carolina closed even though it just had begun a \$17 million modernization program; the town assumed that its jobs were safe, and was not actively pursuing new development.

Third, the loss of manufacturing jobs has led to the further decline of agriculture in the South, where farms are small and more farmers are dependent on off-farm income than in any other region. In 1978, more than half of southern farmers worked off the farm for more than 100 days, and the percentage of farms with sales of over \$40,000 was only two-thirds the national average. The heavy interdependence of agriculture and manufacturing is a factor which once lowered the financial risk of family farming by making family income less dependent on farm production. But now, the loss of supplemental income from off-farm employment on which many farmers had become dependent, contributes to loss of farms.

Fourth, new growth industries, such as those based on new technologies, searching for sites in the Sunbelt are responding to a different set of location incentives than those that had attracted older, more traditional industries. The needs of new industries include more highly educated and skilled workers, better schools, access to cultural activities, and good transportation and communications networks. Much of the South still is sorely deficient on all counts, but southern cities generally are in a better relative position to provide for the needs of these emerging industries.

Fifth, the shrinking role of the federal government and the concomitant deregulation and the devolution of federal responsibility is affecting nonmetro economies. Deregulation tends to centralize communications and transportation, which may reduce access to services in small towns. Cutbacks in federal anti-poverty and economic development programs, which once helped prepare the rural South for traditional industries, means that same level of assistance will not be available to the new growth industries. And agricultural policies that reduce support for small and medium-size farms, taken in tandem with increasing scarcity of off-farm employment, will serve to exacerbate economic conditions in the region.

The *New York Times*, which highlighted southern nonmetro growth five years ago, proclaimed in March 1985 that the bloom was off the rose. Its front page headline was "Rural Southern Towns Find Manufacturing Boom Fading."³ It seemed as if decades of public policies aimed at improving economic conditions in the rural South were dissolving before the next steps, toward better and higher paying jobs, could be taken.

II INTRODUCTION

In 1984, the Board began to examine systematically the data describing changing economic patterns in the South.* These are the questions that eventually shaped the study:

- Is a restructuring of the region's nonmetropolitan economic base actually occurring, or do the shifts in employment represent short-term cyclical consequences of a recession?*
- How do conditions in the nonmetro South differ from conditions elsewhere and what do they portend for future growth?
- Does the proximity of a nonmetropolitan county to metropolitan areas or to interstate highway interchanges influence its growth in nonagricultural employment?
- Are there conditions in or characteristics of nonmetropolitan counties that explain or predict patterns of nonagricultural employment growth?
- How do county characteristics, including location, influence growth patterns of particular industries, and conversely, how is industrial mix related to patterns of employment growth?
- Finally, what federal, state or local policies would be most likely to improve the long-term employment prospects for the nonmetropolitan South?

These questions are addressed by (1) classifying the nonmetropolitan counties of the SGPB South according to location and size of urban population and industrial activity mix (Section III); (2) describing conditions in the nonmetro South that affect economic growth and ability to respond to changing technology and international developments (Section IV); (3) comparing the employment growth between 1977 and 1982 across county locations (Section V); (4) comparing characteristics of fast growth and slow growth counties (Section VI); and (5) analyzing both patterns of employment change for industrial sectors and the impact of industrial mix on growth (Section VII). In the last section (VIII), conclusions are drawn.

The data on which this study is based were obtained from five sources: the U.S. Bureau of Labor Statistics (BLS), U.S. Department of Commerce, U.S. Census Bureau, U.S. Department of Agriculture (USDA), and state road maps, described in detail in Appendix B.***

* An advisory committee of experts in the region met throughout the study with the Board staff and the director of the Southern Rural Development Center to define the issues, refine the questions, and explain results (see Appendix A).

** Restructuring is defined as a significant and long-term shift in the distribution of jobs among industries in the South, both in the numbers of jobs in various industries and in the proportion of those jobs in metro and nonmetro areas.

*** Most of the analyses are based on changes in employment that occurred between 1977, the earliest year available on diskette, and 1982, the latest year for which county-level, industry-specific employment data were available. Employment levels in 1982, a recession year, were depressed by the state of the national economy, but since the analyses are based on comparative changes rather than absolute changes, the impact ought to be minimized.

III CLASSIFICATION SCHEMES

Classification of Counties

Location

As real estate developers claim, "the three most important factors are location, location, and location." Historically, development has been associated with farmlands, forests, or extractive deposits and tended to be determined by the location of natural resources. Today, the key locational factors are different. Some industries seek locations advantageous to production (principally land, labor cost, and supply), while others are more concerned with product markets (interindustry sales and mass consumer markets). For the latter, trucking, and the ability to link metropolitan growth centers, is a factor in business siting. In addition, the physical beauty and environmental attractiveness of rural locations with convenient access to airports, cities and other production areas, often via interstates, are factors in growth. This holds true for both services and manufacturing.

The recent siting of the new General Motors Saturn plant in Spring Hill, Tennessee, despite relatively few government incentives, is a notable example of the importance of location. A major reason for that decision was that the site is within 500 miles of three-fourths of the nation's markets and is near a major transportation hub, Nashville.

Nonmetro counties, therefore, are classified by proximity to interstate highways and to metro areas. Although the exact definition of a metropolitan area is complex, it generally designates an urban area with at least 50,000 inhabitants and includes all of the surrounding counties where a majority of the residents depend on the city for services and employment. This differs from the census definition of "urban," based on community of residence characteristics and defined as a community of at least 2,500 residents, and "rural," defined as those living in communities of less than 2,500 or in open country. Because more data are available at the county level than at the community level, nonmetro-metro distinctions are used in this study.

Three schemes were used to classify nonmetropolitan counties. First, counties were categorized based on urban population and relation to metropolitan areas or center cities. This classification scheme was established by the U.S. Department of Agriculture (USDA). The six nonmetro levels and the number of counties in each are shown in Table 1.

The second scheme categorizes counties based on access to interstate highways. By combining these two schemes, six county groups based on locational characteristics were created (see Figure 1).

- a) **adjacent/corridor**—adjacent to metro county, with at least three interstate interchanges or one interchange within twenty miles of the center of the county;
- b) **adjacent**—adjacent to metro county, but no interstate interchanges within twenty miles of center;
- c) **corridor**—nonadjacent, with at least three interstate interchanges or one within ten miles from center of county;
- d) **tier**—nonadjacent, touching on an interstate, but with fewer than three interchanges and none within ten miles of center;
- e) **remote**—nonadjacent, and with no direct access to interstate highway; and
- f) **metropolitan**—as classified by the U.S. Bureau of the Census.

This classification system yielded groupings unequal in number, employment, and population, shown in Table 2. The remote counties, for example, represented the largest group (362 counties), but contained only 8 percent of total SGPB employment and 10 percent of the population. The tier counties were

TABLE 1

**CLASSIFICATION OF NONMETRO COUNTIES, SGPB SOUTH,
BY U.S. DEPARTMENT OF AGRICULTURE, 1980**

Classification	Number of Counties
Urban Population of 20,000 or more, adjacent to MSA	55
Urban Population of 20,000 or more, nonadjacent to MSA	63
Urban Population of less than 20,000, adjacent to MSA	296
Urban Population of less than 20,000, nonadjacent to MSA	296
Completely rural, adjacent to MSA	141
Completely rural, nonadjacent to MSA	209
Total Nonmetropolitan	1060

the smallest group (86 counties) and accounted for only 2 percent of total employment and 2.5 percent of population.

Individual states differed considerably in their employment distributions across these nonmetro categories, as shown in Figure 2. The five most rural states—Arkansas, Kentucky, Mississippi, North Carolina, and South Carolina—have relatively large proportions of nonmetro employment and relatively large shares of their nonmetro employment in tier and remote counties. The three most urban states, Florida, Louisiana, and Texas, employ the smallest proportions of their total workforce in their nonmetro counties, and have exceptionally small shares in tier and remote counties. The distributions of employment among locations in the remaining states are similar to that of the region.

FIGURE 1

DIAGRAM OF COUNTY LOCATION CLASSIFICATION SCHEME

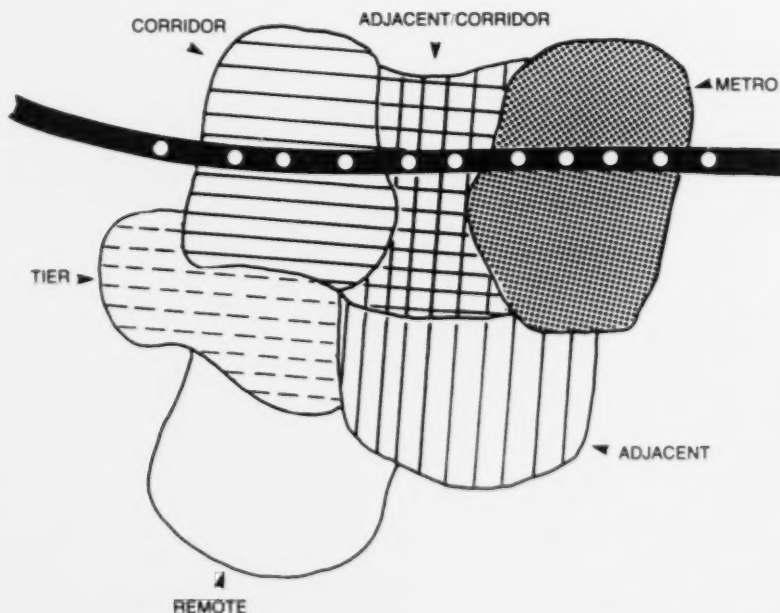


TABLE 2

**NUMBER OF COUNTIES AND DISTRIBUTION OF EMPLOYMENT AND
POPULATION, BY LOCATIONAL CATEGORIES, SGPB SOUTH**

Location	Number of Counties	Percent of Total Employment 1977	Percent of Total Employment 1982	Percent of Population 1980
Remote	362	8.0	7.5	10.4
Tier	86	2.0	1.7	2.5
Corridor	120	4.9	4.5	5.1
Adjacent	220	4.6	4.2	6.4
Adjacent/Corridor	272	10.4	10.1	13.1
Nonmetro	1060	29.9	28.0	37.5
Metro	282	70.1	72.0	62.5
Total, SGPB Region	1342	100.0	100.0	100.0

Growth Rate

Counties also were categorized according to their rates of employment growth. All nonmetro counties were divided into five equal groupings according to 1977-82 growth, with the first quintile representing the 20 percent of all nonmetro counties with the highest percent growth, and the fifth quintile the 20 percent of all nonmetro counties with the lowest percent growth (or the highest decline). Each of the resulting quintiles contains 212 counties. This distinction also was made within each of the five nonmetro locational categories. In order to compare characteristics of high growth and low growth counties independent of their location, the fastest and slowest growing counties in each of the five locational categories were examined. These are referred to in this report as "outliers."

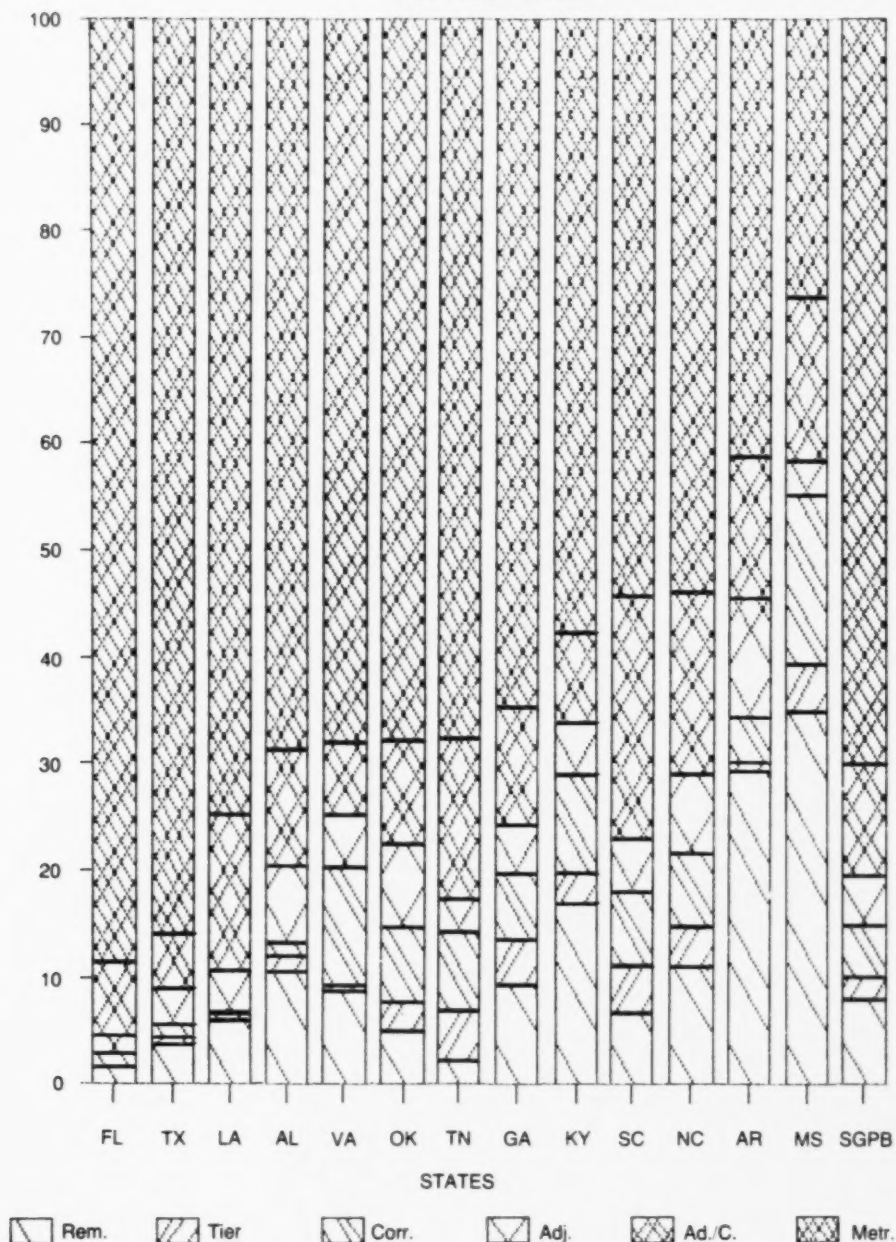
Categorization of Industries

While the first phase of the study utilized Standard Industrial Classifications (SICs) to compare employment changes, the industries were regrouped for this analysis into eleven "development clusters." This was done to better explain how industrial mix affects economic growth and decline. Five SIC categories—services; wholesale trade; retail trade; transportation, communications, and public utilities; and finance, insurance, and real estate—were separated into their two-digit components and regrouped into three broad "service" sectors that reflect their roles in a local economy: urban services, producer services, and consumer services. In manufacturing, the traditional distinctions of durable and nondurable goods manufacturing were refined to reflect growth patterns that emerged from the analysis of the BLS data in the first phase of the project. This resulted in five categories: emerging and traditional durable goods manufacturing, emerging and traditional nondurable goods manufacturing, and new technologies. With the addition of agribusiness, mining, and construction, the eleven resulting "development clusters" are mutually exclusive, except for new technology, which is a subset of the emerging durables cluster. The composition of each sector is summarized below and is more fully described in Appendix D.

- **Sector 1: Agriculture** consists of agricultural and forestry industries that depend heavily upon products traditionally associated with farming and silviculture in rural settings. (It does not include farming.)

FIGURE 2
DISTRIBUTION OF EMPLOYMENT BY LOCATION

SGPB REGION, 1977



• **Sector 2: Mining** groups all extractive industries; these include metallic ores, minerals, and natural solid or liquid fuels which are generally but not exclusively found in nonmetropolitan surroundings.

● **Sector 3: Construction** consists of all construction industries. These industries can be found in both metro and nonmetro settings and their employment is more a function of the pace of growth rather than scale of growth.

● **Sectors 4-7:** All twenty manufacturing industries first were divided into conventional durable and nondurable goods classifications, and then divided once again by a criterion which stipulates a "traditional" or an "emerging" role. The term "traditional" means that the industry has long been an important—although perhaps now declining—component in one or more SGPB states' economies, whereas "emerging" industries are relatively new to many states and may still be growing in some nonmetro counties. Accordingly, Sector 4 includes **traditional durables** (furniture, stone/clay/glass, primary metal); Sector 5, **traditional nondurables** (food, tobacco, textiles, apparel, lumber, paper, leather); Sector 6, **emerging durables** (fabricated metals, machinery, electrical/electronic, transportation equipment, instruments, miscellaneous); and Sector 7, **emerging nondurables** (printing and publishing, chemicals, petroleum, rubber/plastics).

● **Sector 8: Urban service** industries are those involved in the processes of urbanization, which meet the needs of new residents and businesses in approximately equal measure. (Other services which are directed primarily at either firms or residents are assigned to producer or consumer services). These, like the construction industries, are generally associated with the rate of an area's overall urban growth, although some of Sector 8's individual components require a large population base as well (e.g., security commodity brokers, membership organizations).

● **Sector 9: Producer services** consist of industries oriented primarily to producers. Businesses' need for wholesaling services, trucking, water and rail transport, investment services, and business services of many types generate a demand which, in turn, is vital to the growth of small businesses and newly developing industries in the nonmetro south.

● **Sector 10: Consumer services** include all population-oriented retail and service industries which supply consumer households. As a group, these industries are important in population settlements of all sizes, even though some are more apt to be found in large areas (museums), vacation areas (amusement and recreation) or retirement areas (health and social services). Banking is also included in this sector, on the assumption that most banking employment in nonmetro areas is oriented toward household clients in branch banks rather than toward business clients, as it is in metro financial centers.

● **Sector 11: New technology** is the subset of emerging durable industries most likely to include substantial infusions of technological innovations in their product lines and in their production processes. The term "new technology" is used because it is based on two-digit SIC components rather than four-digit SIC industries. (The latter allows finer distinctions according to R&D expenditures or concentration of scientific and technical workers.) As defined here, the new technology sector includes high capital-labor ratio industries which are upgrading their facilities with more and newer technology production equipment: machinery, electrical/electronic equipment, and instruments.

IV CONDITIONS IN THE SOUTH

Prognostications about the future of the South's nonmetro economy are based on two assumptions. The first is that recent economic changes represent a long-term restructuring rather than a temporary disruption. The other is that there are conditions in the nonmetro South that are distinguishable from those in the metro South and from those in nonmetro parts of other regions, and that these conditions impede adjustment to the emerging changes in the economy. Thus, this section illuminates the extent of restructuring—based on work completed in the first phase of this study—and other information on differences between the nonmetro South and other areas. Further, it provides information about the characteristics of the counties grouped by their location with respect to interstate highways and metro centers.

The Restructuring of the Southern Economy

The shock of accelerating globalization of the U.S. marketplace and technological change hit the manufacturing goods-producing sectors first and later rippled out through construction, services, retail and other support sectors. The result has been a restructuring of employment opportunities everywhere, but, for reasons already mentioned, the rural South has been particularly vulnerable. To judge where and how restructuring may be occurring, the study examined changes in employment for major sectors of the economy (one-digit SICs) and by industries within manufacturing (two-digit manufacturing SICs) for both metro and nonmetro areas in each SGPB state. These changes were compared to changes in total employment for the SGPB region as a whole and for each particular state for two time intervals, 1972-82 and 1977-82.

This method of analysis bears a close resemblance to shift-share analysis, but with industries as the unit of analysis and areas as the "mix" term. (See Appendix E.) Employment changes in metro areas are compared to employment changes in nonmetro areas after taking into account the average performance of national and state employment. Put somewhat differently, this analysis examines whether an industry's employment in metro and in nonmetro regions of a particular state grew or declined relative to total employment growth in the state and the SGPB region. This systematic comparison permits detection of areas gaining or losing key industries at a faster or slower rate than "the average," which is also an indication of how nonmetro industrial components are being restructured.

These data form the basis for Tables 3 and 4, which summarize the changes in employment for each one-digit SIC industrial sector and each two-digit SIC manufacturing sector in each state. Industries showing decline in employment in both metro and nonmetro areas are designated (-) and those showing growing employment in both metro and nonmetro areas are designated (+). Industries with metro growth and nonmetro decline are designated (u) for urban, signifying comparative loss of nonmetro jobs and relative metro gains. The opposite pattern, a comparative loss of metro employment and gain of nonmetro employment, is indicated by (r), for rural. *The (u) and (r) designations, then, are indications of restructuring within states.*

The distributions of the shifts for one-digit SIC industrial sectors and two-digit SIC manufacturing industries, for the two time periods, are presented in Table 5. This summary shows that metropolitan economies were much stronger than nonmetropolitan economies during both time periods, but were even stronger in

TABLE 3

RELATIVE GROWTH IN EMPLOYMENT, INDUSTRY SECTORS, 1977-82

State	Industry Sector								
	Mining	Construction	Nondurable Manufacturing	Durable Manufacturing	Transportation	Trade	FIRE	Service	Government
Alabama	+	-	u	u	+	+	+	+	+
Arkansas	+	-	u	-	+	+	+	+	+
Florida		u	-	u	u	u	u	+	-
Georgia		-	-	u	u	u	u		u
Kentucky	+	-	-	-	u	+	+	+	+
Louisiana	+	r	-	-	r	-	+	+	r
Mississippi	+	r	-	-	+	+	+	+	+
North Carolina		u	-	u	+	+	+		u
Oklahoma	+	-	-	-	-	u	u	u	-
South Carolina		u	u	u	-	+	+		u
Tennessee	u	-	-	-	u	u	u	+	-
Texas	+	u	-	-	u	u	u	u	u
Virginia	u	-	u	u	u	u	u	+	u

Code:

- + : Growing faster in both nonmetro and metro regions than SGPB economy and state's respective nonmetro and metro economies
 - : Growing slower in both nonmetro and metro regions than SGPB economy and state's respective nonmetro and metro economies
 r : Growing faster in nonmetro areas and slower in metro areas
 u : Growing slower in nonmetro areas and faster in metro areas

TABLE 4

RELATIVE GROWTH IN EMPLOYMENT, MANUFACTURING INDUSTRIES 1977-1982

	Manufacturing Sector															
	Food	Tobacco	Textile	Apparel	Lumber	Furniture	Paper	Printing	Chemicals	Petroleum	Rubber	Leather	Stone, Clay	Primary Metals	Fabricated Metals	Machinery, Non-Elec.
Alabama	-		u	-	-		r		-		r		-	-	-	+
Arkansas	+		u	-	-	-	-	+	-	u	+	u	-	-	-	u
Florida	-	-	-	-	-	-	-	+	u				-	u	u	u
Georgia	-		u	-	-	-	-	+	-			u	-	u	-	u
Kentucky	-	r	u	-	-	-	u	+	-	+	+	u	-	u	u	u
Louisiana	-		-	-	-	u	-	-	u	+		u	-	u	u	u
Mississippi	r		u	u	u	u	u	+	u	+	u	u	-	u	u	u
North Carolina	-	u	-	u	-	-	-	+	-		+		-	u	u	u
Oklahoma	-		u	u	u	-	-	-	-	-	u		-	u	u	u
South Carolina	-		-	-	u	u	u	+	-		u		-	u	u	u
Tennessee	-	+	r	-	-	-	-	u	-	u	u		-	u	u	u
Texas	-		-	-	-	-	-	-	-	u		+	u	u	u	u
Virginia	-	u	u	-	u	-	-	u	-			u	-	u	-	u

Code:

- + : Growing faster in both nonmetro and metro regions than SGPB economy and state's respective nonmetro and metro economies
 - : Growing slower in both nonmetro and metro regions than SGPB economy and state's respective nonmetro and metro economies
 r : Growing faster in nonmetro areas and slower in metro areas
 u : Growing slower in nonmetro areas and faster in metro areas

1977-82 than in 1972-82. The number of industries in SGPB states that produced a positive component in metro areas while producing a negative component in nonmetro areas, represented in the tables by (u), far exceeded the reverse—a positive nonmetro component and a negative metro component, which is represented in the tables by (r). And the prevalence of manufacturing industries showing overall decline, represented by (-), compared to those showing growth, represented by (+), indicates an overall restructuring affecting both metro and nonmetro areas of the South.

TABLE 5

PERCENT FREQUENCY OF RELATIVE EMPLOYMENT
GROWTH IN NONMETRO AND METRO AREAS,
1972-1982 AND 1977-1982, SGPB STATES

Metro and Nonmetro Pattern	One-digit Industrial Sectors		Two-digit Manufacturing	
	1972-82	1977-82	1972-82	1977-82
(u)	33.0	38.0	29.1	37.3
(r)	6.6	2.8	9.5	5.5
(-)	34.0	25.9	43.7	42.8
(+)	26.4	33.3	17.6	14.4
	100.0	100.0	100.0	100.0

Comparing the Nonmetropolitan South to the Rest of the Nation

There are substantial differences between metropolitan and nonmetropolitan areas within the South. The social and economic indicators of the metropolitan South are, in fact, very close to the national averages; it is the extreme conditions in the South's rural areas that cause the region to rank so low on many socioeconomic indicators. There are also large differences between the average socioeconomic characteristics of nonmetro counties in the South and nonmetro areas elsewhere.

There are also differences among nonmetro regions within the SGPB South. The nonmetro parts of the western SGPB states, for example, are less densely populated. Despite these variations, the similarities among nonmetro parts of the South are sufficiently strong to discuss the nonmetro South as a regional entity.

The South has a higher proportion of its population residing in nonmetro counties than any other region: 38 percent (see Table 6). Excluding the two most populous and urbanized states, Texas and Florida, raises the average for the rest of the region to 42 percent.

The gap between the ruralness of the South and that of other regions, however, has narrowed. The South did not participate in the widely-heralded "rural population turnabout" in the 1970s to the same extent that the rest of the nation did. During a period when rural population growth exceeded urban population growth nationally, southern cities continued to grow 44 percent faster than rural areas. In recent years, the rate of growth of the region's cities was even higher compared to southern rural areas than it was in the 1970s. Currently, metro counties are growing at about double the rate of nonmetro counties (see Table 7). Both metro and nonmetro areas in the South, with high in-migration rates and high birth rates, are growing faster than the nation as a whole.

The rural South is unique in other ways. Although it has the largest percentage of its population living in rural areas, it is still more "urbanized" than

TABLE 6

NONMETROPOLITAN POPULATION IN 1980 AS PERCENT OF TOTAL STATE POPULATION

Alabama	38	North Carolina	63
Arkansas	69	Oklahoma	44
Florida	17	South Carolina	52
Georgia	42	Tennessee	41
Kentucky	56	Texas	22
Louisiana	37	Virginia	35
Mississippi	78		
SGPB Region		38	
US Total		28	

Source: *Statistical Abstract of the United States, 1985*, 105th Edition, U.S. Department of Commerce, Bureau of the Census, 1985

the rural West or North. The region is more densely populated, and a large proportion of small towns are within an hour drive of a metropolitan center and interstate routes. Much of the rural South has been termed "urbanized rural," and only the western-most part of the region has large sparsely settled areas. The population density of the East South Central census region, for example, with 45 percent of its population living in rural areas, is 82 people per square mile, while the population density of the Pacific Coast states, which has only 13 percent of its population in rural communities, is 35 per square mile.

There are also differences in the composition of the nonmetro South. The percentage of the population that is black in the SGPB South is about twice that of the rest of the nation. An even bigger gap exists, however, between the rural South and the rural non-South. Nearly all blacks outside of the South live in cities; the rural South is home to about 90 percent of all rural blacks.

One correlate of a large, rural minority population in the nonmetro SGPB South is a high level of poverty, as shown in Table 8. The South had the lowest per capita income of any region in 1980 (\$9,436, versus the U.S. average, \$10,495), and its rural areas were by far the poorest parts of the South; per capita income was only \$7,735 in nonmetro counties. Even more telling, the South's rural black population had a per capita income of only \$3,203 in 1980, less than one-third of the national average. There is also more "persistent poverty" in the South—that is, counties in the lowest quintile, based on proportion of population living below poverty, for the past two decades.

During the 1960s, a variety of federal programs were introduced with the intent of reducing rural poverty. Federal aid did bring the South nearer to parity with the rest of the country, and per capita income rose from 75 percent of the

TABLE 7

RATIO OF NONMETROPOLITAN GROWTH RATES TO METROPOLITAN GROWTH RATES IN SOUTHEASTERN STATES AND UNITED STATES

Ratio of Population Growth Rates in Nonmetro to Population Growth Rates in Metro Counties		1959-69	1969-79	1979-83
Southeast		0.16	0.69	0.52
United States		0.22	1.24	0.81
Ratio of PCI Growth Rates in Nonmetro to PCI Growth Rates in Metro Counties		1959-69	1969-79	1979-83
Southeast		0.92	0.99	0.82
United States		0.96	1.12	0.87

Source: Daniel H. Garrison, "Patterns of Growth in Metropolitan and Nonmetropolitan Areas: An Update," *Survey of Current Business*, U.S. Department of Commerce, 65 (May 1985)

TABLE 8

**SELECTED DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS:
Averages for SGPB Nonmetro and Metro Areas,
Total SGPB Region, and United States**

Characteristic	Non-Metro Average	Metro Average	Region Average	U.S. Average
Percent Population Change, 1970-1980	18.0	24.1	21.7	11.4
Percent Rural, 1980	61.7	16.4	33.4	26.3
Percent Black, 1980	18.9	18.0	18.4	11.7
Percent Minority, 1980	21.0	21.7	21.4	16.6
Percent High School Graduates, 1980	50.0	65.6	59.8	66.5
Percent College Graduates, 1980	10.0	17.4	14.6	16.2
Number of Physicians Per 100,000 Residents, 1980	76.9	181.8	142.4	173.7
Percent Self-employed, 1980	8.8	5.5	6.7	6.8
Per Capita Income, 1980	\$7,735	\$10,458	\$9,436	\$10,495
Transfer Payment Per Capita, 1980	\$1.37	\$1.35	\$1.36	—
Unemployment Rate, 1982 (%)	10.7	7.8	8.8	9.7
Female Labor Force Participation Rate, 1980 (%)	41.9	43.5	43.0	42.6

national average to 85 percent of the national average between 1962 and 1977. During the past decade, however, per capita income gains leveled off. In the 1970s, nonmetro income growth kept pace with metro income growth, but between 1979 and 1983, per capita income growth rates in the metro South exceeded growth rates in the nonmetro South by 12 percent (see Table 7). The metro South has continued to move closer to the rest of the nation on most economic measures; it is the nonmetro parts of the South that have kept the region below national averages.

The nonmetro South is unique in another way that affects its economic future. Even though the region as a whole is slightly less industrialized than the nation, based on the percent of the work force employed in manufacturing industries, rural areas are highly industrialized. Approximately 26 percent of the South's rural labor force are employed as operators, fabricators and laborers. About 27 percent of its nonagricultural labor force are employed in manufacturing, as shown in Table 9. Therefore, given the impact of the recession and restructuring on manufacturing, it is not surprising to find that unemployment rates in 1982 in the nonmetro South were much higher than unemployment rates in southern cities.

Although the South is working urgently to improve education, it still differs from other regions in the educational attainment of its people. Average levels of educational attainment are considerably lower in the South than in any other region. Part of that is a legacy of the past, attributable to lack of access to educational opportunities for the black population and lack of attention generally to the quality of education. Moreover, the disparities in educational measures between metro and nonmetro areas is greater in the South than in other regions.

TABLE 9

**PERCENT OF NONAGRICULTURAL LABOR FORCE EMPLOYED IN
MANUFACTURING, 1980**

	Rural	Urban	Total
South	27.0	17.7	20.6
Nonsouth	24.2	23.1	23.3

Source: U.S. Census, 1980

Although the percentage of students completing high school in the South has risen substantially, the gap between metro and nonmetro in the South remains greater than in other regions of the country. In 1960, 49.9 percent of adults over 25 living in southern metro areas had completed four years of high school while 31.8 percent of those living in nonmetro areas had completed four years of high school. In 1980, 65.6 percent of all adults ages 25 and over in southern metro areas had four years of high school, nearly as high as the average for the non-South, 66.5 percent. In the nonmetro South, however, only 50.0 percent of adults 25 and over had completed high school in 1980. Adults in the nonmetro South also are less likely to have had the financial means, educational qualifications, and aspirations to complete college. The percent of adults completing college in nonmetro counties was only 57 percent of the percent finishing in metro counties.

Variations Among County Locations

The demographic characteristics of the counties grouped by location, shown in Table 10, do not show any striking effects of location; the demographic profiles of the various locational categories are quite similar. Differences in racial composition, women in the labor force, availability of physicians, unemployment rates, and education levels were negligible. Only population growth and per capita income varied significantly.

The demographic profile of the adjacent/corridor counties was most similar to that of the metro counties, though less than might be expected. Even though they have good interstate access and are near metro centers, their characteristics are much closer to the nonmetro averages than to the metro averages. They do, however, exhibit the highest population growth, have the highest per capita income, the highest levels of educational attainment, and the

TABLE 10

SELECTED DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS OF COUNTY LOCATIONAL CATEGORIES, SGPB STATES

	Remote	Tier	Corridor	Adjacent	Adj/Corr	Metro
Percent Employment Growth, 1977-82	14.3	7.3	12.8	13.2	18.0	25.6
Percent Population Growth, 1970-80	15.6	12.2	16.4	16.7	22.5	24.1
Number of Counties	362	86	120	220	272	282
Percent Rural, 1980	64.3	65.9	54.7	68.0	58.7	16.4
Percent Black, 1980	19.1	21.7	18.6	19.5	18.0	18.0
Percent Minority, 1980	21.1	22.9	20.4	22.3	20.1	21.7
Percent High School Graduates, 1980	48.2	48.2	51.6	47.9	52.1	65.6
Percent College Graduates, 1980	9.3	10.0	11.0	9.2	10.5	17.4
Number of Physicians per 100,000, 1980	73.9	67.8	110.0	63.3	75.0	181.8
Average Per Capita Income, 1980	\$7468	\$7425	\$7909	\$7673	\$7973	\$10457
Transfer Payment Per Capita, 1980	\$1.40	\$1.36	\$1.38	\$1.35	\$1.37	\$1.35
Percent Unemployed, 1982	10.8	11.5	10.1	10.8	10.5	7.8
Percent of Labor Force, Female, 1980	41.5	43.0	42.9	41.1	42.0	43.5
Percent Self-Employed, 1980	9.7	9.0	8.3	9.5	7.9	5.5

lowest rates of self-employment.

Counties with interstate access exhibited few of the traits expected from the presence of a major interstate highway. Per capita income and levels of educational attainment were slightly higher than the nonmetro average, but only the former appeared to be significantly different from the nonmetro average. Population growth was slower in corridor counties than in remote counties, surprising given the fact that half of the corridor counties are located in four states—Georgia, Oklahoma, Texas, and Virginia—which are among the fastest growing states in the region.

The smallest group of counties among the five nonmetro classifications, the tier counties show the most economic distress; they have the lowest per capita income, highest unemployment rate, and slowest growth in both jobs and population. They also have the highest concentrations of minority and black population. They did continue to grow as fast as the nation in population, but considerably slower than other locations.

Summary of Findings

- A large number of industry sectors in southern states grew faster in metro areas and slower in nonmetro areas than those same sectors grew in the nation and state in total, indicating a shift in job opportunities from nonmetro to metro counties.
- Unlike any other region of the nation, in the 1970s, population in nonmetro counties grew more slowly than in metro counties.
- The percent of the population aged 25 and over that had completed high school in nonmetro counties was 76 percent of the same measure for metro counties in 1980; differences in proportions of adults 25 and over who had graduated from college were even greater.
- The nonmetro South was the poorest region of the nation in 1980. Average per capita income in nonmetro counties was less than three-fourths the per capita income in metro areas.
- The average unemployment rate in nonmetro counties in 1982 was 37 percent higher than the unemployment rate in metro counties.
- Nonmetro counties had much higher rates of self-employment than in metro counties—more than can be accounted for by differences in the number of family farmers.
- Differences in the characteristics of counties grouped by location were small, with the exception of per capita income and population growth, which were higher in counties with interstates or adjacent to metro centers.

V LOCATION AND EMPLOYMENT GROWTH PATTERNS

Improving roads and focusing resources on selected urban centers have been prominent economic development strategies in the South since the 1960s. Policymakers believed that better access to transportation would create new jobs and that interstate highways would be particularly effective ways to bring jobs to more rural sites. And they believed that strong urban growth would eventually radiate out ("trickle down") to the surrounding, more remote areas. If these theory are correct, county location vis-a-vis interstate highways and metro centers should bear a strong relationship to employment growth.

The early evaluations of these strategies are mixed. Between 1967 and 1971 in the South, trade and service industries did grow faster in counties that had interstate highways, but manufacturing employment actually grew faster in counties without interstate highways. The same pattern was observed between 1971 and 1975.⁵ A more recent national study of growth between 1969 and 1979 in more than 3000 counties concluded that the concentration of interstate highways in a state has significantly increased growth in population and in total employment, but not growth in manufacturing employment.⁶ These studies, however, did not distinguish among counties according to degree of accessibility to the highways or proximity to metro centers.

To find out whether the patterns observed in earlier studies have changed or if other locational variables make a difference, growth patterns of employment between 1977 and 1982 were compared for the five nonmetro locational groups. They reveal interesting—and unexpected—patterns.

Regional Patterns of Growth

The clearest picture of diverging employment patterns is drawn by a simple comparison of metro and nonmetro counties in the SGPB South, as shown in Figure 3. Between 1977 and 1982, employment growth in nonmetro counties was just over half the rate of employment growth in metro counties. In fact, metro counties accounted for more than 80 percent of all the employment growth between 1977 and 1982, even though they had only 68 percent of the region's population.

Among nonmetro counties, those near a metro center and with good access to interstate highways showed the highest average growth. Adjacent/corridor counties grew more than 18 percent, 50 percent faster than other nonmetro counties and 40 percent faster than counties near an interstate or a metro center but not both. Adjacent counties and corridor counties grew 13.2 percent and 12.8 percent, respectively.

Tier counties grew at the lowest rate, 7.3 percent, even though they border faster growing corridor counties. This may indicate that corridor counties draw a disproportionate share of available growth from their common territory. Contrary to some preconceptions that the most remote counties have grown the slowest, remote counties' average growth (14.3 percent) was nearly identical with the average growth for all nonmetro counties (14.7 percent), and higher than all categories but the adjacent/corridor counties. Still, more than one of every five remote counties lost employment between 1977 and 1982, as shown in Figure 4.

FIGURE 3

CHANGES IN EMPLOYMENT BY COUNTY LOCATION
SGPB REGION, 1977-1982

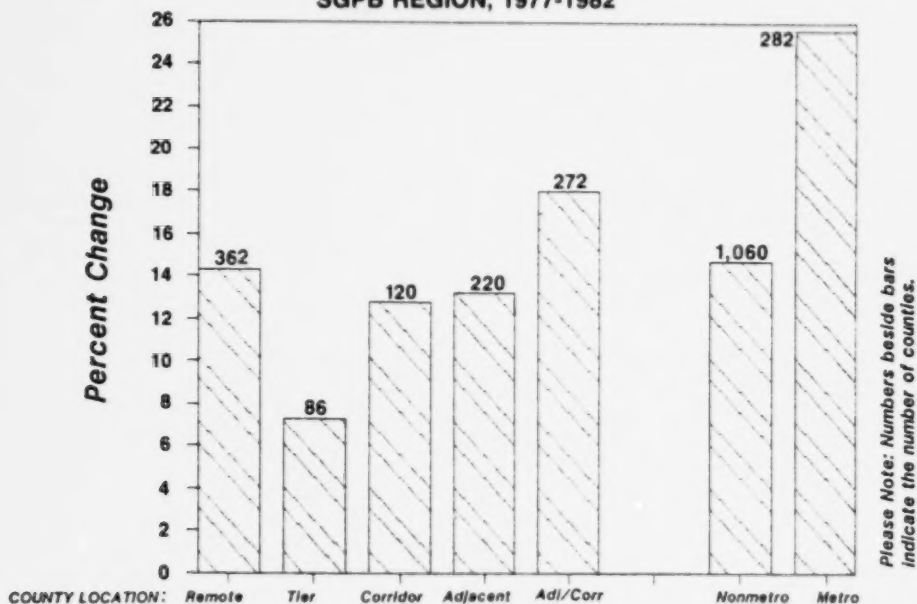
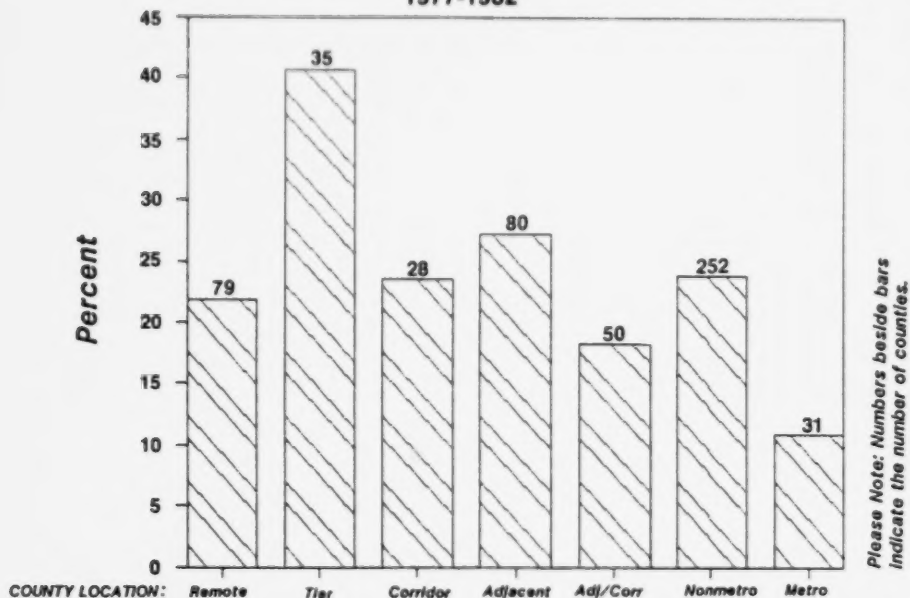


FIGURE 4

PERCENT LOSING EMPLOYMENT BY COUNTY LOCATION
1977-1982



The effects of the two location factors, access to interstate highways and adjacency to metro centers, are summarized in Table 11. Although the effects of each is moderate (about three and a half percentage points), they are in the direction expected.

TABLE 11

**SUMMARY OF EFFECTS OF PROXIMITY TO METRO AREA AND ACCESS
TO INTERSTATE HIGHWAYS, PERCENT EMPLOYMENT GROWTH,
1977-1982**

	Corridor	Noncorridor	Total
Adjacent	18.0	13.2	16.6
Nonadjacent	12.8	12.9	12.9
Total	16.4	13.0	14.7

Intraregional Patterns of Growth

The SGPB region consists of states in three census regions, which share generally similar resource endowments and geographical characteristics, but exhibit dissimilar patterns of growth in employment, as shown in Figure 5.

The 378 nonmetro counties in the *West South Central* region, Arkansas, Louisiana, Oklahoma, and Texas, grew the fastest and came closest to matching their region's metro growth. (This growth, however, has slowed considerably since the period of analysis.) Even in this high growth region, however, 57 nonmetro counties lost employment, including 23 in Arkansas and 20 in Texas; only six metro counties lost employment. Major differences between the West South Central states and the region as a whole include higher relative growth in both corridor and tier counties. It is, in fact, the only part of the region with high growth in its tier counties. The West South Central states also include the most remote counties, so that proximity to an interstate may be a more important factor in their growth.

The growth profile of the SGPB states included in the *South Atlantic* region, Florida, Georgia, North and South Carolina, and Virginia, most closely resembles that of the full SGPB. The principal difference is that its overall nonmetro growth is slightly lower. About one out of every four nonmetro counties in this region lost total employment between 1977 and 1982. The growth pattern in its 378 nonmetro counties, however, is remarkably similar to that of the overall region.

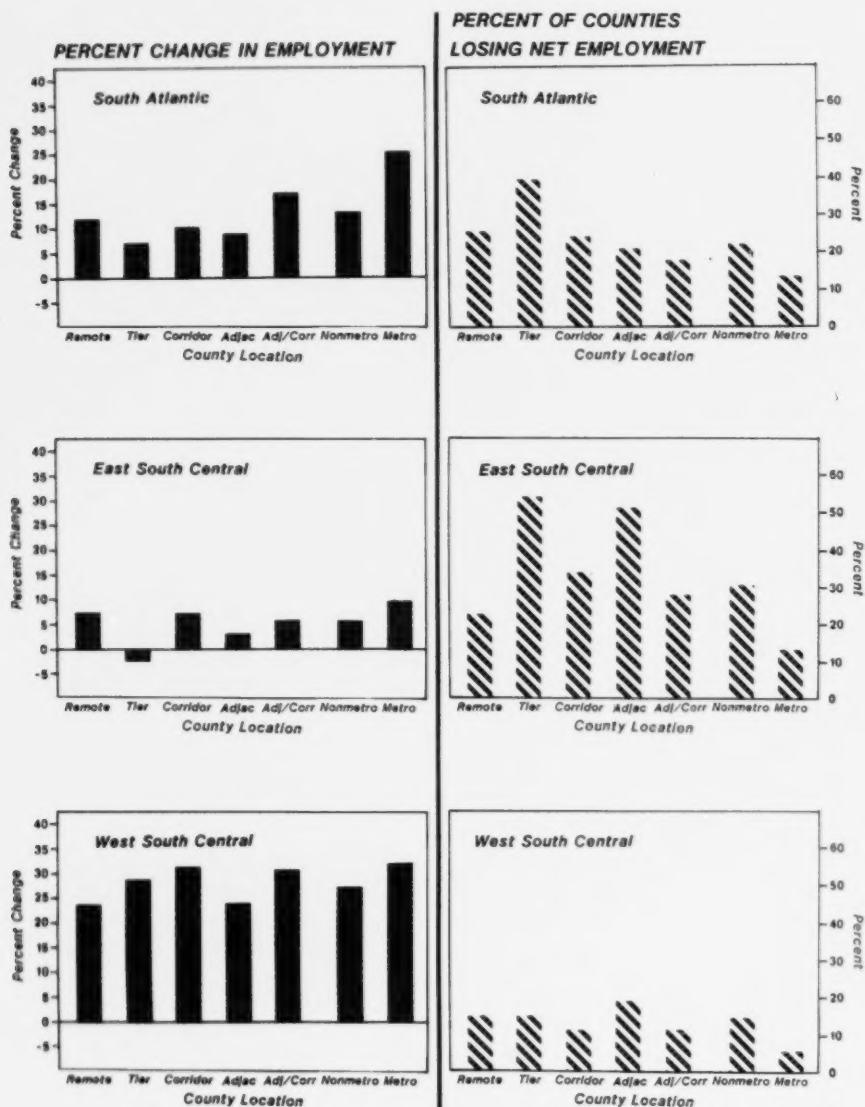
The *East South Central* region, Alabama, Kentucky, Mississippi, and Tennessee, had the lowest growth over the five year period, both in metro and nonmetro counties (9.5 percent and 6.1 percent, respectively). This sub-region's noticeably slower growth was heavily influenced by absolute employment losses in one of every three nonmetro counties. Even more distinctive, however, was its dissimilarity to the other sub-regions' nonmetro growth profiles. Nonmetro areas in the East South Central grew much more rapidly in remote and corridor counties and grew much less rapidly in adjacent, adjacent/corridor and tier counties (the latter, in fact, lost 2.5 percent of their employment). This region is the most rural and, except for Tennessee, lacks very large metropolitan centers—an Atlanta or a Houston—to attract growth to nearby counties. Instead, it is characterized by small metro centers and a more evenly dispersed population.

Patterns of Growth Within States

Regional data provide a useful overview of trends but obscure state variations that might yield useful information for policy analysis. Moreover, the use of average values to describe employment changes masks variations within locational categories (e.g., tier, remote, etc.) that might explain unexpected results. In some states, employment changes among counties within a locational group range as widely, as from minus 40 percent to over 100 percent. To provide

FIGURE 5

EMPLOYMENT CHANGES AND PERCENT OF COUNTIES
THAT LOST EMPLOYMENT, 1977-1982,
FOR COUNTY LOCATIONAL CATEGORIES,
BY SGPB REGIONS



additional information about patterns of growth, the ranges of employment changes for each locational category and the median values (midpoints) are presented and analyzed in Appendix F.

As noted previously, the relative growth of remote counties (second highest of the five categories) was surprising. In five states, Arkansas, Kentucky, Louisiana, Mississippi, and South Carolina, remote counties showed the highest

TABLE 12a
EMPLOYMENT GROWTH IN THE SGPB REGION, 1977-1982,
BY COUNTY LOCATION

	Remote		Tier		Corridor		Adjacent		Adj/Corr		Non-metro		Metro	
	No. of Counties	% Growth	No. of Counties	% Growth	No. of Counties	% Growth	No. of Counties	% Growth	No. of Counties	% Growth	No. of Counties	% Growth	No. of Counties	% Growth
Alabama	15	7.8	1	-17.0	3	27.8	16	8.2	14	11.4	49	8.7	18	7.6
Arkansas	36	12.7	2	-5.6	6	8.0	13	6.9	10	6.8	67	9.7	8	6.9
Florida	9	36.9	2	19.6	7	26.3	8	25.9	17	49.3	43	41.2	24	35.6
Georgia	50	10.5	16	8.9	13	9.4	23	11.6	27	13.6	128	11.2	31	20.9
Kentucky	45	11.4	12	1.2	11	11.2	14	2.0	21	8.8	103	9.1	17	7.0
Louisiana	9	45.5	3	6.3	1	3.7	11	32.5	24	34.7	48	35.8	16	23.9
Mississippi	36	7.1	11	-1.9	13	4.2	7	1.2	9	-6.1	76	3.0	6	14.0
N. Carolina	33	12.2	6	1.6	5	12.4	19	8.1	18	9.6	81	9.7	19	16.8
Oklahoma	21	23.1	4	39.2	10	42.8	12	21.5	15	32.6	62	31.2	15	34.7
S. Carolina	5	19.2	4	16.4	5	10.0	7	-0.7	16	7.3	37	9.5	9	18.7
Tennessee	12	2.8	13	-0.9	9	6.4	14	-2.4	27	7.1	75	4.6	20	11.6
Texas	66	26.8	10	31.4	19	32.4	58	29.1	48	35.9	201	31.3	53	36.3
Virginia	25	5.5	3	-7.4	18	6.5	18	5.9	26	13.5	90	7.5	46	20.4
Total	362	14.3	86	7.3	120	12.8	220	13.2	272	18.0	1060	14.7	282	25.6

rate of growth among nonmetro counties (see Table 12a). All but Louisiana are states with the highest proportions of total employment in nonmetro counties, and three, Arkansas, Kentucky, and Louisiana, are among the minority of southern states whose nonmetro employment is growing faster than their metro employment. Without delving into industrial mix (e.g., the extent to which these counties are dependent on tourism) or demographic characteristics (e.g., the presence of retirees), what might account for the relatively high growth rates in remote counties in these states?

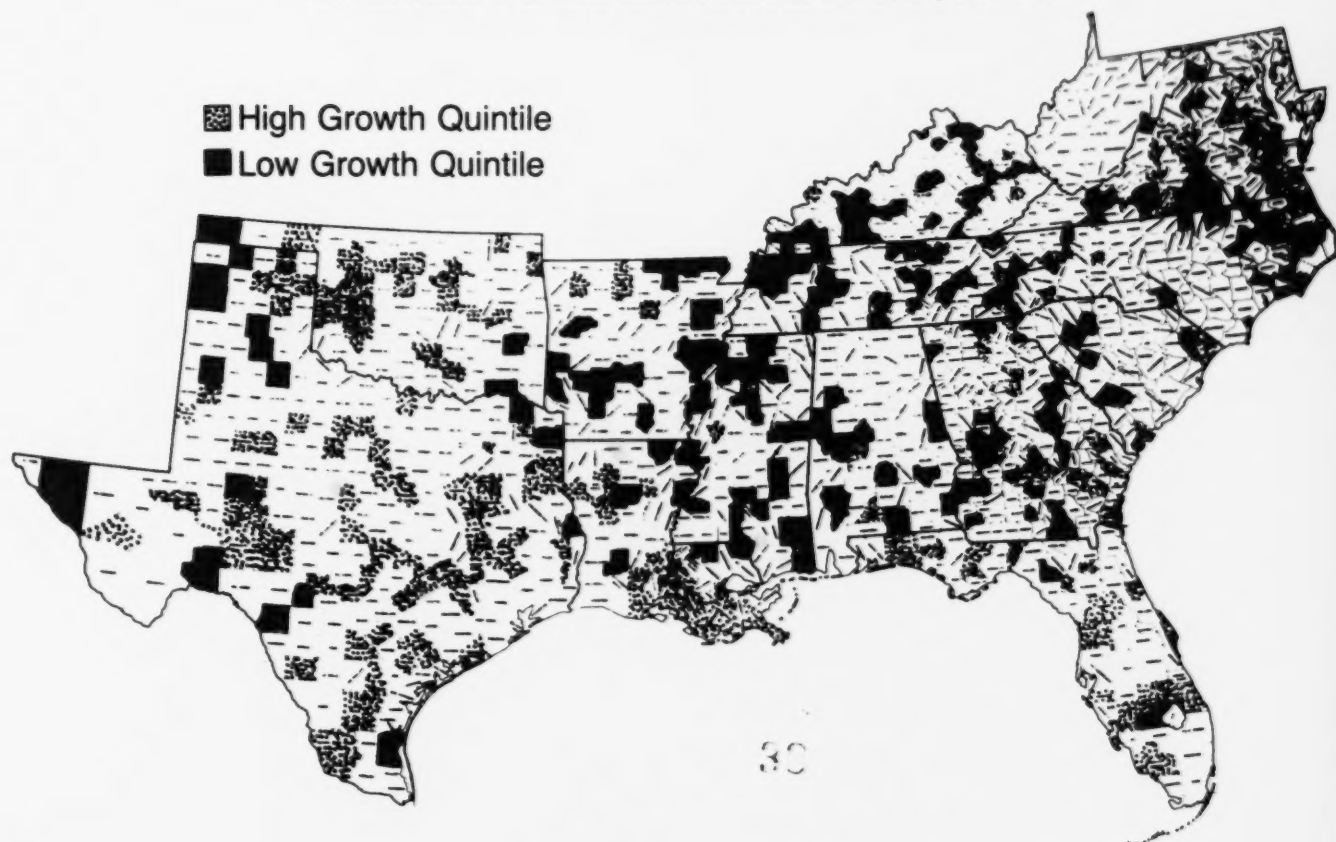
Closer examination of the data shows that perhaps these five states are less unique than they appear at first glance. In Arkansas, Kentucky, and Mississippi, slow state-wide growth rates meant that even though remote counties grew more rapidly than any other locational group in the state, they still fell below the regional average for remote counties. Even more important, however, is the finding that in most SGPB states a very few rapidly growing remote counties greatly distort the picture because of how much they raise the average growth for that category. In South Carolina and Louisiana, the high mean growth rates for remote counties are deceptively high since one or two counties with very high growth raised the average. In South Carolina, just one large county on the coast (Horry County) accounted for 83 percent of all jobs gained in remote counties. Similarly, in Louisiana, two large remote parishes (also on the coast—St. Mary and Terrebonne) accounted for fully 95 percent of the jobs gained in remote counties.

Median percent growth, which is the middle value when all counties are ranked, is not biased by extremely high growth or decline. The greatest impact of substituting median growth for mean (average) growth is on the remote counties. According to this measure, their distress is much more apparent. Although remote counties exhibited the highest or second highest growth in six states based on average, they only ranked first or second in one state—Alabama—based on median growth (see Table 12b). The median growth was, in fact, lower than the average in eleven states, accentuating the distortion caused by a small number of counties.

Analysis of median rather than mean growth also reinforces the importance of proximity to both population centers and interstate highways. In Mississippi the difference is most dramatic. The largest adjacent/corridor county (Jackson County) lost nearly 10,000 jobs during the five-year period, drastically lowering the mean percent growth of the state's adjacent/corridor counties which

FIGURE 6

NONMETROPOLITAN COUNTIES WITH HIGH GROWTH IN
EMPLOYMENT AND LOW GROWTH IN EMPLOYMENT, 1977-1982



otherwise showed modest to high growth. Median growth rates would rank the adjacent/corridor group not last but first among county categories in Mississippi. Closer examination of the individual state data shows that *adjacent/corridor counties are doing slightly better than the regional averages indicate.*

Finally, it is interesting to turn to maps and conjecture about the effect of geography and location to explain intrastate variations in percent employment growth. The map (Figure 6) shows many instances of rapidly growing counties situated next to slow growing counties. This is the case in Florida, where two of the slowest growth remote counties (Gulf and Lafayette) are adjacent to two of the fastest (Bay and Dixie, respectively). The same is true in Mississippi, South Carolina, Louisiana, and other states. The pattern may be a variation of the tendency noted above for tier counties to lose out to their neighboring corridor counties. In the case of two neighboring remote counties, if one grows rapidly, the other may be less likely to gain jobs.

There are also instances of high growth counties in the midst of a slow growth area. Perry and Greene Counties in Alabama, for example, are in the top growth quintile even though they are in the black belt of the state, a poor area with a large minority population. Despite high growth, those two counties have per capita income only about half the national average, and in 1982 had an unemployment rate of 17 percent. Thus, it is evident that high growth is not always synonymous with prosperity.

Table 12b

**Rankings of Locational Categories by Employment Growth,
within SGPB States, by both Mean Growth and Median Growth
Number of States in which Means/Medians are Ranked:***

	First	Second	Third	Fourth	Fifth	Sixth
Remote	4/1	2/0	1/3	3/5	2/0	1/4
Tier	0/0	1/0	1/2	1/3	3/3	7/5
Corridor	2/1	3/3	4/2	2/3	1/3	1/1
Adjacent	0/1	0/2	3/2	3/1	4/4	3/3
Adj/Corridor	1/1	6/7	1/2	2/1	2/2	1/0
Metro	6/9	1/1	3/2	2/0	1/1	0/0

* Each number represents the number of the 13 SGPB states with the highest growth, second highest growth, etc., when the six locational categories were ranked according to the two measures of central tendency, mean and median.

Summary of Findings

- Employment in nonmetro counties grew at only half the rate of metro counties between 1977 and 1982.
- In nonmetro areas, adjacent/corridor counties showed the fastest growth; remote counties were next.
- The West South Central region grew the fastest in employment and the East South Central region grew the slowest.
- Variations within location categories were large; in some states, very high growth counties skewed distributions, causing deceptively high "average" growth.
- In many states, the use of median growth rates rather than average growth strengthens the effect of being both next to a metro center and having an interstate highway, and demonstrates the economic distress of many remote counties.

VI DEMOGRAPHIC AND ECONOMIC FACTORS AND EMPLOYMENT GROWTH

Are there conditions in or characteristics of fast growth and slow growth counties that can explain or predict growth patterns? To answer this question, a number of characteristics were selected as potential correlates of employment growth—demographic patterns, social conditions, and labor force factors. Changes in employment between 1977 and 1982 were compared for different sets of characteristics and differences in characteristics of counties were compared for varying rates of growth.

Demographic, Economic, and Social Factors

Characteristics of nonmetro counties that have been associated with employment growth in the past include racial composition, ruralness, wealth, education, and population growth rates. The demographic, economic, and social characteristics of counties compared in this study include population growth between 1970 and 1980, percent black and minority population in 1980, percent rural population in 1980, and per capita income in 1980, physicians per 100,000 residents, in-migration of elders, rate of poverty, and levels of educational attainment and state and local per pupil expenditures on public schools (see Table 13).

Racial Composition

Although it is difficult to document the impact of racial composition on economic growth, some industrial development officials admit that many businesses do not want to locate in counties with large minority populations; recruiters offer industrial prospects few if any incentives to reconsider location in minority areas. The tipping point sometimes cited is one-third or more minority; when a county is more than one-third minority, businesses are less likely to seriously consider it as a potential site. The justification most often cited is that minorities are more inclined to unionize, although there are undoubtedly other racially motivated factors in some situations.

During the period studied, there were large differences in employment growth for counties with differing levels of black and minority population. Counties with less than 25 percent minority population grew more than twice as fast as those with more than 50 percent minority population, shown in Figure 7. The relationship can be observed by plotting percent minority population for the quintiles displayed in ascending order, shown in Figure 8.

A comparison of the concentration of minority and black population in the highest and lowest employment growth quintiles of each of the five nonmetro locations, shown in Table 14, demonstrates that the impact of race is greatest in the remote and tier counties. In those two classifications, the proportions of blacks in the slowest growing quintiles are about double the proportions in the fastest growing quintiles. The differentials in adjacent and corridor counties are significant, but not nearly as great, which may indicate that the populace is more homogeneous in counties that are near metro centers or traversed by interstate highways.

TABLE 13

CHARACTERISTICS OF NONMETROPOLITAN COUNTIES, BY RANKED QUINTILES* OF GROWTH IN EMPLOYMENT BETWEEN 1977 AND 1982

Quintiles:	First	Second	Third	Fourth	Fifth
Percent Employment Growth, 1977-82	49.8	24.1	12.0	3.3	-9.4
Percent Population Growth, 1970-80	29.7	19.7	15.2	14.0	11.3
Number of Counties	212	212	212	212	212
Percent Rural, 1980	56.4	62.4	60.5	63.8	67.7
Percent Black, 1980	15.5	15.1	20.2	21.3	23.4
Percent Minority, 1980	18.2	19.0	21.7	22.5	24.1
Percent High School Graduates, 1980	54.5	51.2	49.8	47.6	45.7
Percent College Graduates, 1980	11.1	10.6	10.5	9.1	8.2
Number of Physicians per 100,000, 1980	96.7	75.6	78.8	73.5	57.9
Average Per Capita Income, 1980	\$8494	\$7856	\$7549	\$7513	\$7114
Percent Unemployment, 1982	8.7	9.8	10.8	11.3	13.6
Percent of Labor Force, Female, 1980	40.5	41.3	42.7	42.6	42.1
Percent Self-Employed, 1980	9.4	9.5	8.2	8.1	8.8

* The first quintile is the fastest-growth quintile; the fifth is the slowest-growth quintile.

Since growth also varies in direct proportion to per capita income, and since minorities have lower per capita income than whites, employment growth by racial composition was compared with some control for per capita income. Using only low-income counties—those with per capita income of less than \$6,000, which is less than 60 percent of the national average—employment growth in counties where more than one-third of the population is black was compared to employment growth in those counties where less than one-third of the population is black. *Among poor counties only, those with relatively smaller black population (less than 33.3 percent) grew 50 percent faster than poor counties with relatively more blacks (more than 33.3 percent).* Differences in educational attainment levels between the two groups, which might explain the growth differential, were negligible.

FIGURE 7
EMPLOYMENT GROWTH, 1977-1982, BY
PERCENT MINORITY POPULATION
IN COUNTY IN 1980

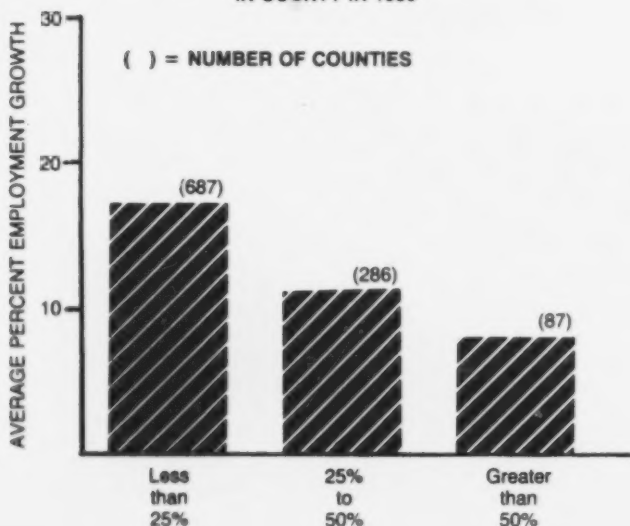
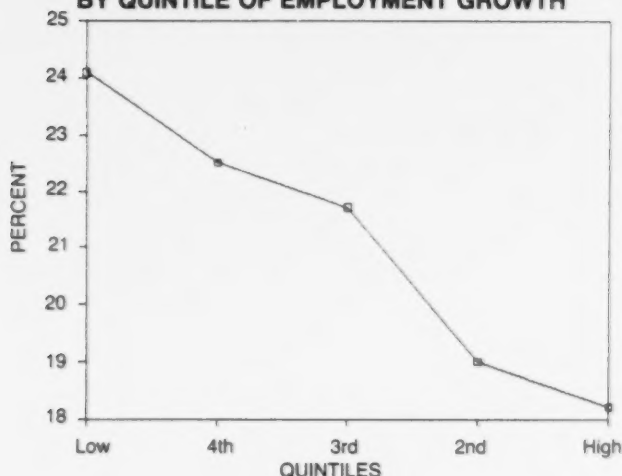


FIGURE 8
PERCENT MINORITY POPULATION, 1980
BY QUINTILE OF EMPLOYMENT GROWTH



Income

Income was examined as an independent factor to find out how it is correlated to employment changes. In the past, analysts have argued that industry was attracted by the low wages and low income of the rural South. If true, high growth ought to be associated with low per capita income and low wages. (Wages were not analyzed because of unreliability of the data. However, the data were accurate enough to demonstrate that wage levels generally followed per capita income levels.) The opposite of the expected relationship was found for the study period; counties with per capita income 25 percent above the region's average grew more than twice as fast as counties 25 percent or more below the region's average, as shown in Figure 9. (In some cases, of course, growth leads to an increase in per capita income, but if low wages are in fact an inducement to growth, higher income levels ought to retard future growth.)

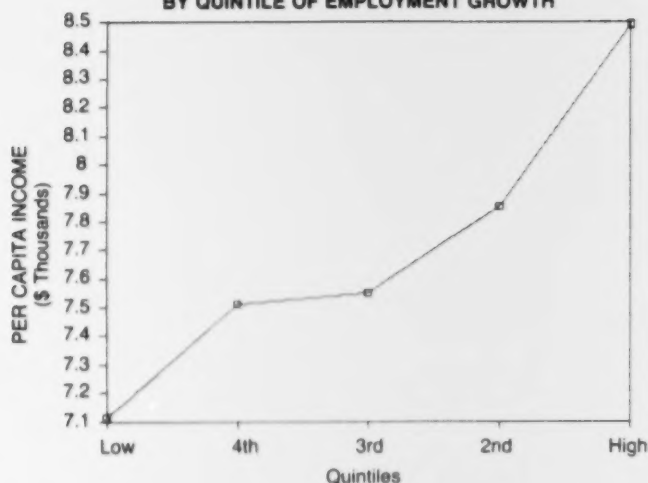
This relationship held for each of the five nonmetro classifications. The differences between growth and income as represented by the high and low quintiles, however, are much smaller in counties that have good access to interstates (see Figure 10). Again, interstate highways seem to have a homogenizing effect on the population—at least as indicated by county averages.

The economies of counties classified by USDA as "persistent poverty"—those counties that remained in the lowest quintile over a 20 year period—grew considerably slower than the nonmetro average, 10.2 percent. The counties designated as "persistent poverty" also had only 41 percent of their population completing high school, and had only 7 physicians per 100,000—less than 5 percent of the national average. Their average unemployment rate in 1982 was 13 percent.

Wages

The wage data provided in the data base was examined, but because of the suppressed data in many rural counties, was determined to be of insufficient accuracy to analyze. Wages, however, are an important consideration both in perceptions of the problems in the South and in the future of the region. The sizable reductions in wages that have taken place as manufacturing workers shifted into service occupations have been a concern to those monitoring the

FIGURE 9
PER CAPITA INCOME, 1980
BY QUINTILE OF EMPLOYMENT GROWTH



economic restructuring and to those concerned with raising standards of living. In the South, however, manufacturing wages have been lower than in the North and thus displacement has resulted in a smaller reduction in income for workers losing manufacturing jobs.

Recent data from the U.S. Department of Labor show that 56 percent of workers displaced in nondurable manufacturing, the mainstay of the nonmetro South, took new jobs at the same or higher rates of pay. This does not imply, however, that wage scales are sufficiently high to provide a comfortable living standard for all in the nonmetro South; the goal is to create better-paying jobs. But when alternative work is available to those displaced from nondurable manufacturing by restructuring, it is less likely to lower living standards.

FIGURE 10
EMPLOYMENT GROWTH, 1977-1982, BY
PER CAPITA INCOME, 1980

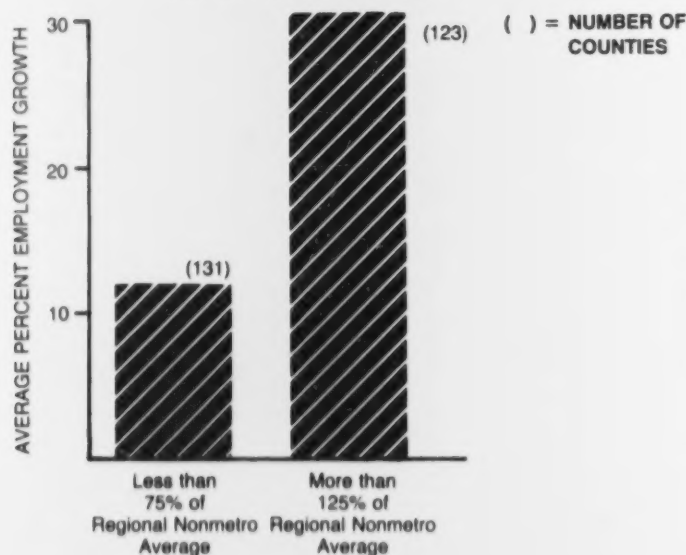
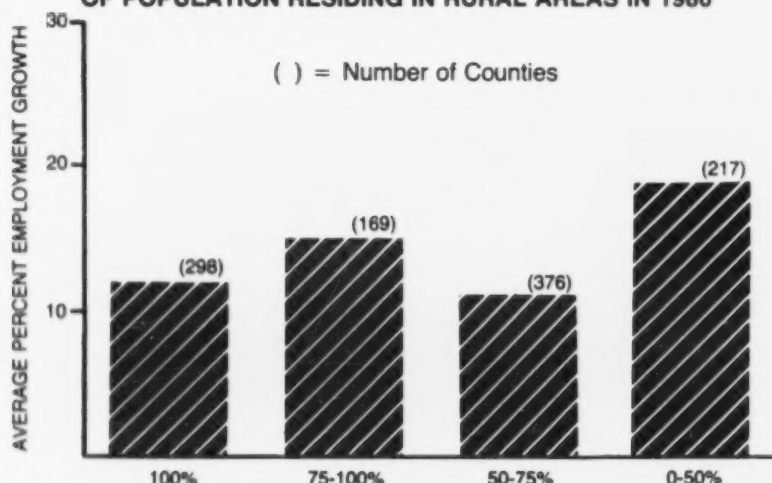


FIGURE 11
EMPLOYMENT GROWTH, 1977-1982, BY PERCENT
OF POPULATION RESIDING IN RURAL AREAS IN 1980



Ruralness

The third demographic factor analyzed was the proportion of county residents in rural areas. Rural areas include open country and towns with fewer than 2,500 people. On the one hand, some rural counties have strong tourism industries and large numbers of seasonal residents, and are likely to be in a position to support industries dependent on natural resources. On the other hand, they are less likely to have the services or infrastructure required to support technology- and information-dependent industries and businesses, which constitute a large share of new jobs. To some extent, these two trends offset one another. The analysis revealed a weak negative association between rural population and growth (see Figure 11). The rural counties least likely to attract jobs are those that lack the climate, resources, and natural beauty to attract tourism or retirees and also lack an industrial infrastructure.

The USDA classification of counties according to size of urban population exhibited much the same pattern; the fastest growing counties were those with the largest urban population. Interestingly, the slowest growing category was not completely rural, but the one with urban populations of less than 20,000, as shown in Table 14.

TABLE 14
EMPLOYMENT GROWTH IN NONMETROPOLITAN COUNTIES
IN THE SGPB REGION, 1977-1982,
BY U.S. DEPARTMENT OF AGRICULTURE CLASSIFICATION

	Number of Counties	Percent Change in Employment
Urban population of 20,000 or more adjacent to MSA	55	+ 17.4
Urban population of 20,000 or more not adjacent to MSA	63	+ 17.4
Urban population of less than 20,000, adjacent to MSA	296	+ 16.1
Urban population of less than 20,000, not adjacent to MSA	296	+ 9.4
Completely rural, adjacent to MSA	141	+ 16.6
Completely rural, not adjacent to MSA	209	+ 13.1

Population Growth

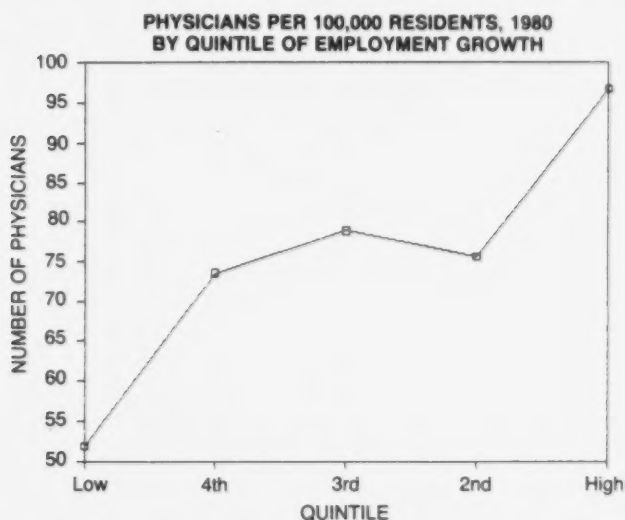
Population growth between 1970 and 1980 was strongly associated with employment growth, as shown in Table 13. This was not an unusual finding, since counties with higher employment growth attract new people. An even more interesting relationship is that between the distribution of population growth among the various locational categories and the distribution of employment. The percent of the region's population in each of the nonmetropolitan categories is larger than the percent of its total employment. Possible explanations include workers commuting from nonmetro to metro counties, higher proportions of unemployed and retired people in nonmetro areas, and the fact that the employment figures are only nonagricultural and do not include those employed as farmers.

Health Care

Poverty and poor health care often go hand in hand. Higher rates of poverty in nonmetro counties translate into less available health care.⁷ Many rural residents must travel long distances for medical attention. The lack of health care for children contributes to learning difficulties, lowers educational attainment levels, and, in turn, contributes to the cycle of poverty. Both availability of medical care as a component of infrastructure and the education and skills of the work force are important factors in the location decisions of emerging businesses and thus influence growth.

As an indicator of differences in health care, the number of physicians per 100,000 was compared at varying levels of employment growth. The difference in the number of physicians per person by growth rate was not as great as the difference between metro and nonmetro counties, but there were some striking trends. The number of physicians in the slowest growing quintile was only 60 percent of the number in the slowest growing profile, and only 33 percent of the U.S. average.

FIGURE 12



Retirement

As an estimate of the importance of retirees to the region's economy, growth in the counties designated by USDA as "retirement havens"—those where the

net in-migration of persons 60 and over exceeded 15 percent was compared to the nonmetro average. The retirement counties grew 27.2 percent during the five-year span, about double the nonmetro average growth and higher than the average metro growth in employment. Among the service clusters, consumer services grew by 36 percent and producer services grew by 42 percent in retirement counties—well above the region's average growth in those two clusters. Transfer payments in these counties were 16 percent higher than the regional average. This supports the importance of transfer payments, which now constitute nearly 15 percent of total income, to nonmetro economies.

Education and Employment Growth

Levels of educational attainment and measures of educational achievement have been consistently lower in the South than in any other region. In the 1940s, attainment rates were only about half the national average. Although the gap has been closed considerably, it remains low because of past poor educational opportunities. This is particularly true in nonmetro areas.

Low educational attainment levels were once counted as an advantage in attracting low skill industries who did not want employees with high long-term economic aspirations. Historical evidence suggests that many of the businesses that located in the South had little need for a work force that was even functionally literate, much less credentialed. In fact, more education might have raised aspirations and expectations above what many of the businesses were able to provide.

For service industries, many of which require educated and skilled employees, however, low educational levels are a *disadvantage*. A study of growth between 1969 and 1979 in 3000 of the nation's counties found that a 10 percent increase in educational attainment levels resulted in a 3.8 percent increase in total employment, but a net loss in manufacturing employment.

Levels of Educational Attainment

If high levels of education have been a disincentive to growth, they ought to vary inversely with employment growth, particularly in manufacturing. The percent of adults ages 25 and over who have completed high school only, or both high school and college, varies directly with growth in total employment. The slowest growth quintile had the lowest completion rates at both levels of educational attainment, as shown in Figures 13 and 14.

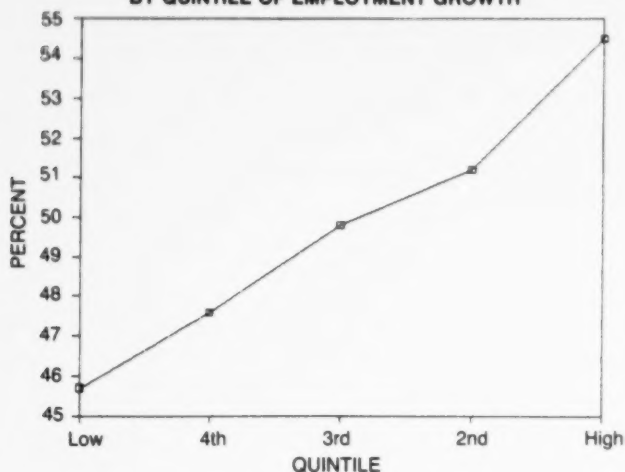
In contrast to the findings of earlier studies and popular perceptions, even manufacturing showed higher growth in counties where educational attainment was higher. Employment in nonmetro counties in which the percent of adults who completed high school was 25 percent or more below the average for all nonmetro counties in the region grew 10.8 percent; counties in which the percent of adults who completed high school was 25 percent above the average grew by 26.1 percent. *This contradicts the notion that manufacturing firms still are indifferent to the skill and educational levels of the labor force.*

Comparing high and low quintiles of employment growth within each of the county locational classifications confirms that the same pattern exists in all locations, as shown in Table 15. The only significant variation is that average levels of educational attainment in the fastest growth quintile—remote and adjacent counties—were much lower than in the other county classifications.

Education Expenditures

The level of educational attainment is only one way that education influences the economy. The quality of education is also a factor. Since there are no widely

FIGURE 13
PERCENT ADULTS 25 AND OVER COMPLETING HIGH SCHOOL, 1980
BY QUINTILE OF EMPLOYMENT GROWTH



accepted measures of quality, state and local expenditures per pupil in selected states were used as an imperfect but reasonable proxy for quality of education. Federal expenditures have been excluded because they are predominantly compensatory (i.e., to serve disadvantaged and handicapped youth) and not for the support of operating programs. State and local investment therefore, is a more appropriate measure for predicting the economic impact of educational quality. State and local funds for schools, however, come from tax revenues, which, when increased, are generally considered to be a disincentive to business investment. Thus, education expenditures represent two opposing forces that influence growth: taxes and quality of education. An analysis of how growth is related to level of expenditures may shed some light on how the balance is tipped.

Since state and local expenditures at the beginning of the five year analysis period would have a greater impact on local economies than expenditures at the end of the period, the earlier 1977-78 figures were used. The effects of spending

FIGURE 14
PERCENT ADULTS 25 AND OVER COMPLETING COLLEGE, 1980
BY QUINTILE OF EMPLOYMENT GROWTH

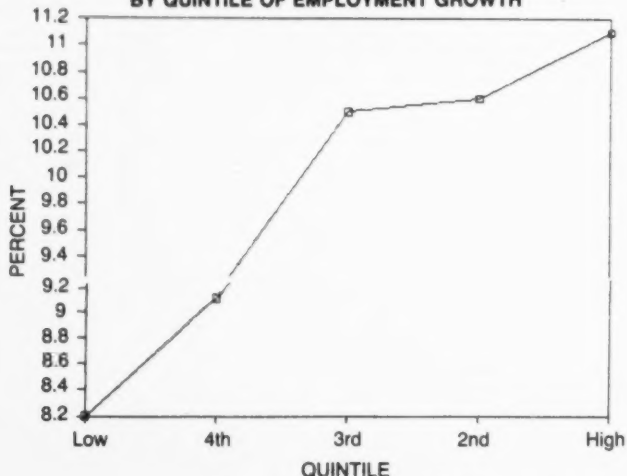
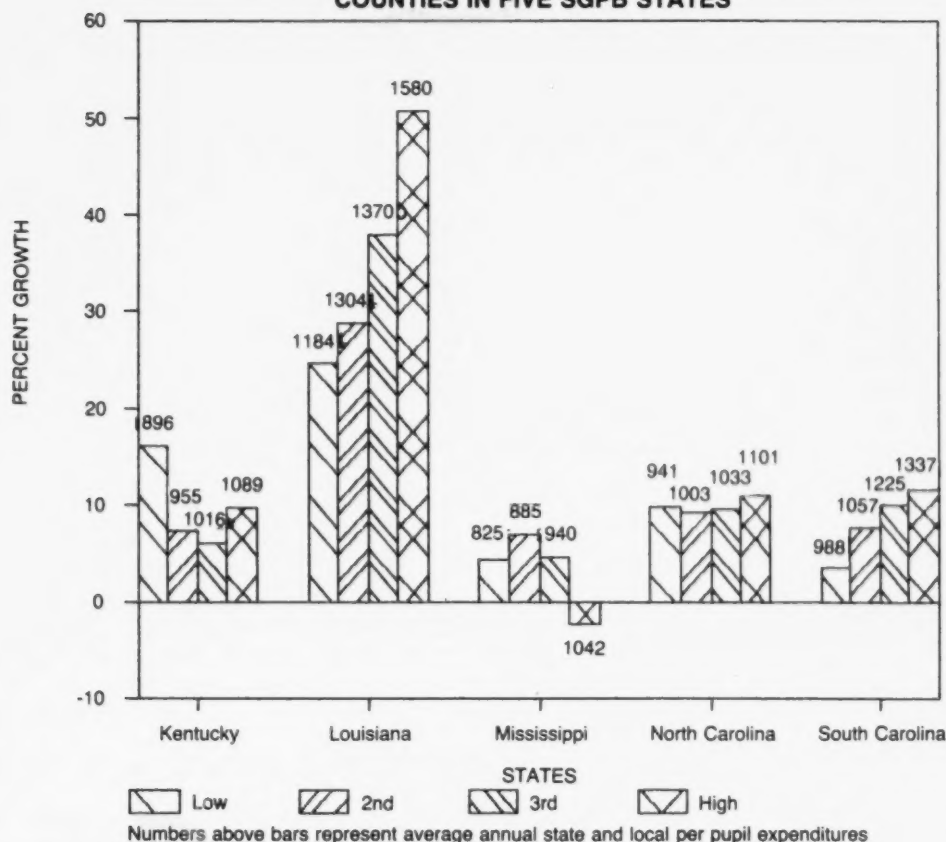


FIGURE 15
EMPLOYMENT GROWTH FOR QUARTILES OF STATE AND LOCAL
EXPENDITURES PER PUPIL IN 1977-1982, FOR NONMETRO
COUNTIES IN FIVE SGPB STATES



on education in nonmetro counties were examined in five states—Kentucky, Louisiana, Mississippi, North Carolina, and South Carolina—by comparing the percent employment growth for groups of nonmetro counties divided into four equal quartiles according to expenditures per pupil.* (See Figure 15.)

In two of the states, South Carolina and Louisiana, growth was higher in counties that spent more state and local revenues on education. In North Carolina, the association was weaker, but the counties in the highest spending quartile also had the highest average growth in employment. In two states, Kentucky and Mississippi, the pattern was reversed and the groups of counties that spent less grew more on average. It is interesting to note, though, that these two states had the lowest per pupil expenditures among the five states and the slowest overall growth in employment. The two states with the strongest correlation had the greatest disparities in spending, and their highest spending quartiles had the highest expenditures among the five states analyzed. (Note that even the medians of the highest quartiles were far below the national average for state and local expenditures per pupil of \$1,740.) Thus, it appears that only relatively large differences in spending are correlated with employment growth.

* States were chosen on the basis of expediency—where information for the year needed was available and where the school district enrollments and expenditures could be easily aggregated to the county level to match the employment data.

Labor Force Factors

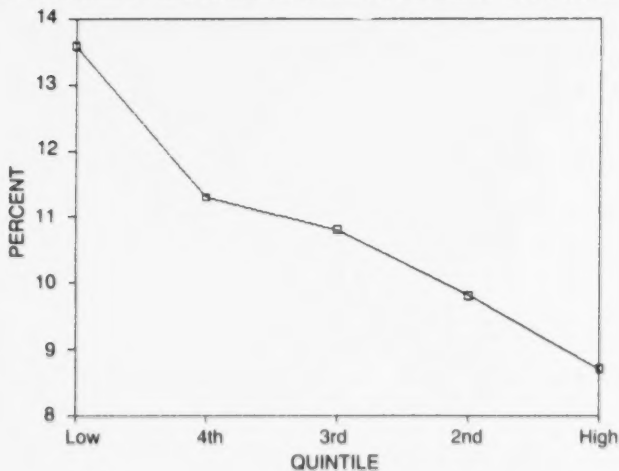
The composition of the labor force can both influence patterns of employment growth and help explain them. Labor force factors examined were the proportion of the work force which is self-employed, the percent of the labor force that is female, and the unemployment rate. Differences in the first two, rates of self-employment and female participation, were minimal when compared across county locations and growth rates.

The faster growing groups of counties had slightly higher rates of self-employment and slightly lower proportions of females in the labor force, but the differences were not striking. Examining differences between high and low quintiles within each of the locational classifications shows that the difference in the rates of self-employment is greatest where there is access to interstate highways. In contrast, differences in the remote and adjacent counties, which do not have access to interstate highways, were almost negligible. This suggests that proximity to major transportation routes in high growth areas is a stimulant to entrepreneurial activities. (See Table 15.)

Unemployment rates did vary greatly with employment growth. The unemployment rate in 1982 in the fastest growing quintile was only about two-thirds of the rate in the slowest growing quintile. Unemployment rates also, however, illustrate the error of assuming that high growth in employment represents a strong economy. *More than one out of every four counties that grew 30 percent or more had an unemployment rate of more than 10 percent in 1982.* Thus in many depressed counties, even though rapid growth brought new jobs to the county, employment rates were still high compared to the rest of the region.

FIGURE 16

UNEMPLOYMENT RATES IN 1982
BY QUINTILE OF EMPLOYMENT GROWTH BETWEEN 1977 AND 1982



Specialized Counties

The USDA, in addition to classifying counties with high rates of in-migrating elders and persistent poverty levels, classifies counties whose income is particularly dependent on certain economic activities. Three of the categories, as measured by the proportion of total income derived from that activity, are agriculture (at least 20 percent of income), manufacturing (at least 30 percent of income), and government employment (at least 25 percent of income). Since the County Business Patterns provide data only by industry classifications, the

TABLE 15

**CHARACTERISTICS OF COUNTIES IN THE LOW AND HIGH QUINTILES OF
EMPLOYMENT GROWTH BETWEEN 1977 AND 1982,
BY COUNTY LOCATION**

	Remote		Tier		Corridor		Adjacent		Adjacent/ Corridor	
	Lo 1/5	Hi 1/5	Lo 1/5	Hi 1/5	Lo 1/5	Hi 1/5	Lo 1/5	Hi 1/5	Lo 1/5	Hi 1/5
Percent Growth, 1977-82	-9.0	44.0	-14.8	39.5	-6.4	52.4	-11.2	51.0	-7.3	59.4
Percent Minority, 1980	26.7	15.5	26.9	16.9	18.7	15.2	24.3	21.3	21.4	19.8
Percent Black, 1980	25.7	12.7	26.7	13.5	18.3	12.9	23.1	18.3	20.9	16.6
Percent Rural, 1980	72.8	61.7	79.6	52.5	60.2	58.1	73.4	66.9	58.4	53.0
Percent Pop. Change, 1970-80	8.9	26.6	6.7	15.3	11.8	28.2	11.4	23.5	15.3	37.8
Percent High School Graduates, 1980	43.4	51.7	43.9	58.0	47.2	54.0	43.7	48.8	48.9	57.2
Percent College Graduates, 1980	7.8	9.5	7.1	13.5	8.8	12.0	7.5	9.6	9.0	11.6
Per Capita Income, 1980 (\$)	6852	8205	6660	9408	7559	8404	6861	8156	7611	8636
Percent Self-Employed	10.1	10.4	9.5	10.7	8.5	9.8	9.3	9.6	7.1	9.1
Percent of Females in Labor Force, 1980	41.8	40.3	41.6	42.1	42.7	41.2	41.6	39.5	42.4	40.3
Percent Unemployed, 1982	12.9	8.9	14.5	7.3	13.1	8.5	14.3	9.1	13.3	8.5

Notes: Lo 1/5 represents the 20 percent of the counties in the particular category with the lowest percent growth between 1977 and 1982; Hi 1/5 represents the 20 percent of the counties in the category with the highest percent growth between 1977 and 1982.

USDA classification is the only mechanism in this study for measuring the effects of economic restructuring on counties that are farming—or government-intensive.

Counties heavily dependent on farming and manufacturing were much more severely affected by the recession and international competition than those dependent on government employment, as shown in Table 16. Despite

TABLE 16

**SELECTED FEATURES OF NONMETRO COUNTIES WITH
SPECIALIZED ECONOMIC BASES**

	All Nonmetro	Agriculture ¹ Counties	Manufacturing ² Counties	Government ³ Counties
Number of Counties	1060	235	238	86
Percent Growth, 1977-82				
Total Employment	14.7	12.4	11.6	24.6
Manufacturing Employment	1.6	1.1	3.4	11.0
Population (1970-1980)	18	12	16	20
Percent Rural, 1980	62	77	67	50
Percent of Adults Completed High School, 1980	50	46	48	57
Proportion of labor force, female	42	40	43	44
Percent of Employment in Manufacturing, 1977	42	36	55	27

¹ At least 20 percent of total income from agriculture, 1975-1979

² At least 30 percent of total income from manufacturing employment, 1979

³ At least 25 percent of total income from government employment, 1979

Note: Criteria from, "Classifying Major Socioeconomic Patterns Among U.S. Nonmetropolitan Counties," Peggy J. Ross, Bernal L. Green, and Robert A. Hoppe, unpublished mimeo, U.S. Department of Agriculture, Economic Research Service, 1984.

pressures in recent years to reduce government employment, counties with a large government sector continued to grow relatively fast, both in employment and in population. The relatively small rural populations and higher educational attainment levels in government-intensive counties also may have contributed to their growth. Employment in the 86 nonmetro counties in the South with one-quarter or more of the work force on the public payroll grew by about 25 percent.

Farming counties, which grew only 12 percent in employment during the five-year period, exhibited special characteristics that may have affected their performance. They were only half as likely to have access to interstate highways as other nonmetro counties, were much more rural than the rest of the nonmetro South (77 percent of their population), had lower levels of educational attainment, and had a smaller female share of the labor force. In addition, as expected, these agriculture-dependent counties had the highest rate of self-employment—more than 13 percent.

The agribusiness sector of agriculture-dependent counties grew by more than 25 percent, much higher than the rest of the nonmetro South, though still comprising less than two percent of total employment in those counties. Manufacturing, even in farming counties, accounts for 36 percent of the nonagricultural jobs. Of that total, two-thirds is in traditional nondurables, which includes food processing. (The SGPB region has a larger proportion of its labor force employed in the food and fiber system than any other region.) Manufacturing employment showed virtually no growth between 1977 and 1982 in farming-intensive counties.

Manufacturing-intensive counties had the slowest overall growth among the three areas of economic specialization (11.6 percent), but manufacturing employment in those counties did increase by just over three percent. On average, the 234 manufacturing-intensive counties had 56 percent of their work force employed in some sort of manufacturing. They were slightly more likely to be situated along an interstate, although 28 percent were "remote."

Summary of Findings

- Growth in employment was negatively associated with the proportion of the county's population that is black.
- Growth in employment was positively and strongly associated with population growth, percentage of adults who completed high school and college, per capita income, and number of physicians per resident.
- Unemployment rates were higher in slow growth (or decline) counties, but also were high in a substantial number of fast growth counties.
- Among nonadjacent nonmetro counties, those that are heavily urbanized grew considerably faster than those that are more rural.

VII PATTERNS OF GROWTH BY INDUSTRY

A key hypothesis of the study was that the industrial changes observed in the South are affecting metro and nonmetro locations differently. As a result, metro areas will be likely to grow much faster than nonmetro areas in the future and some nonmetro areas may be unable to sustain healthy economies. If these changes are indeed occurring, and if they are structural and not merely the effects of cyclical economic fluctuations, examination of employment patterns in different industries ought to explain some of the variation in employment growth in the region. Further, such an examination ought to help predict future growth patterns.

There are several ways to analyze the impact of industrial restructuring on employment growth. First, the distribution of employment by the designated industrial clusters (industry mix) can be examined across counties classified by their location and by their growth rates. Second, the rate of growth of various industry sectors can be compared across county locations. Finally, each industry cluster's contribution to total employment growth in different locations can be measured and compared. In this section, industrial clusters refer to the eleven industry categories described in Section III.

Industry Mix and Location

The differences in industrial mix between nonmetro and metro areas are much greater than variations among nonmetro locations. Compared to metro areas, nonmetro areas have higher concentrations of manufacturing employment, especially in traditional nondurables, and lower levels of employment in urban and producer services. Among the locational categories of nonmetro counties, the only variations that stand out are higher manufacturing and lower service components in tier and adjacent counties, and slightly higher employment in extractive industries in remote counties, shown in Table 17.

Industrial Mix and Employment Growth

Growth in employment is strongly associated with industrial mix. Ordering nonmetro counties into quintiles according to rates of growth results in quite different distributions of employment among industry sectors for the year 1977. (See Figure 17.) The higher the growth in total employment, the smaller the proportion of total employment in manufacturing and the larger the proportion of employment in service industries. In other words, *growth rate is inversely related to percent of 1977 county employment in manufacturing and positively related to employment in services.*

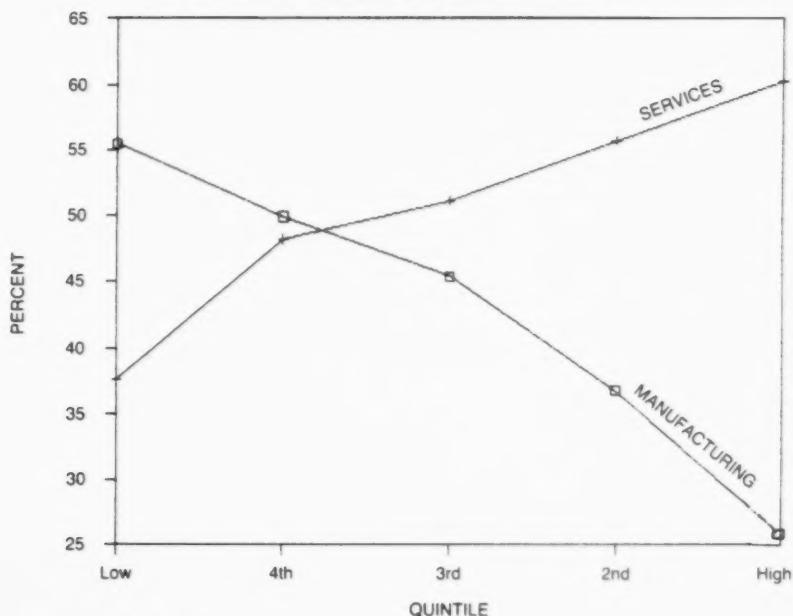
While growth in manufacturing generates a larger employment multiplier than services, this relationship often worked in a negative direction during the period of the study. When manufacturing jobs are lost, particularly in counties with high concentrations of employment in manufacturing, the ripple effect causes decline in other sectors of the economy as well. The dramatic dampening effect of manufacturing observed in this data, it should be noted, is partly cyclical since the study examined data between 1977, a recovery year, and 1982, the trough of the latest business cycle.

TABLE 17
PERCENT DISTRIBUTION OF EMPLOYMENT AMONG INDUSTRY
CLUSTERS FOR LOCATIONAL CATEGORIES, 1977
LOCATIONAL CATEGORIES

Industrial Clusters	Remote	Tier	Corridor	Adjacent	Adj/Corr	Nonmetro	Metro	SGPB
Agribusiness	0.72	0.46	0.40	0.85	0.68	0.66	0.02	0.20
Mining	7.19	4.73	3.60	5.64	4.47	5.25	4.00	4.36
Construction	3.59	3.47	3.62	3.46	4.49	3.89	5.84	5.28
Traditional Durables	3.60	5.06	4.89	3.61	3.98	4.04	2.12	2.67
Traditional Non-Durables	20.19	24.14	18.79	25.21	19.33	20.65	6.02	10.23
Emerging Durables	8.65	9.82	9.25	7.35	9.97	9.10	8.99	9.02
(New Technologies)*	(4.83)	(6.68)	(5.61)	(4.50)	(5.21)	(5.16)	(5.02)	(5.06)
Emerging Non-Durables	3.71	3.95	5.55	3.55	5.66	4.70	4.23	4.36
Urban Services	9.49	9.68	9.63	9.62	9.79	9.65	15.27	13.65
Producer Services	11.04	8.79	10.87	9.62	9.76	10.20	17.84	15.64
Consumer Services	31.84	29.90	33.40	31.08	31.87	31.86	35.69	34.59

* Employment in New Technologies is also included in Emerging Durables.

FIGURE 17
PERCENT EMPLOYED IN NONMETRO COUNTIES
MANUFACTURING AND SERVICES, 1977
BY QUINTILE OF EMPLOYMENT GROWTH, 1977-1982



Industrial Mix and the "Outliers"

The analysis can be further refined by examining counties within each county locational group by employment growth quintiles. Table 18 shows the mix of

TABLE 18

**PERCENT DISTRIBUTION OF EMPLOYMENT AMONG INDUSTRIAL
CLUSTERS BY QUINTILE, FOR 1977**

QUINTILES

Industrial Clusters	First	Second	Third	Fourth	Fifth
Agribusiness	0.9	0.8	0.5	0.5	0.5
Mining	7.5	6.6	3.6	3.7	3.2
Construction	5.6	3.9	3.7	3.3	3.2
Traditional Durables	3.4	3.5	5.5	5.3	5.6
Traditional Non-Durables	11.4	20.8	26.7	31.3	30.5
Emerging Durables	6.4	8.7	9.0	7.8	12.9
(New Technologies)*	(3.0)	(5.6)	(5.1)	(4.5)	(6.5)
Emerging Non-Durables	4.6	3.7	4.2	5.5	6.5
Urban Services	13.2	10.6	8.9	8.0	6.9
Producer Services	12.1	9.7	9.2	8.6	6.8
Consumer Services	34.9	31.7	28.8	26.1	23.9
Total	100.0	100.0	100.0	100.0	100.0

* Employment in New Technologies is included in Emerging Durables.

employment for the top and bottom quintiles within each locational group. In all groups, counties in the bottom quintile had a net loss of jobs during the period and counties in the top quintile had growth rates ranging from 40 to 59 percent.

The strong association between high concentrations of employment in manufacturing and decline in total employment is repeated in each of the county locational categories. Counties in the bottom quintile of growth had a greater proportion of 1977 employment in manufacturing, and counties in the top quintile had a greater proportion of employment in other sectors, especially the service sectors.

Given this general pattern, the presence of certain manufacturing clusters are more strongly associated with decline than others for certain county locations. Traditional nondurables showed the strongest relationship to overall employment decline. This was especially true in tier, adjacent, and adjacent/corridor counties, where employment in traditional nondurables was three to four times higher, as a percent of total employment, in declining counties than in growing counties. The declining tier counties, for example, had almost half of their total 1977 employment in traditional nondurables manufacturing, while at the same time, growing tier counties had only one-eighth of their total employment in that sector.

Of all the manufacturing clusters, *traditional durables showed the weakest association with overall decline*. This is surprising, given its net decline in all but the corridor counties during the period. Even corridor counties, where traditional durables showed net growth, had a proportionately larger traditional durables sector than those county locational categories that were growing.

The emerging manufacturing clusters showed a positive association with overall growth in just two instances: emerging durables in tier counties and emerging nondurables in adjacent counties accounted for relatively larger shares of the total employment in high growth than in slow growth counties. In all other cases, the emerging manufacturing cluster, like the traditional clusters, employed a smaller proportion of the labor force in high growth counties than in slow growth counties.

Levels of employment in the service clusters were positively associated with overall growth in all locations. Further, employment in urban and producer services was more strongly associated with growth than was employment in consumer services. Counties tend to be more homogeneous in their levels of employment in consumer services, regardless of whether they grew or declined. Urban and producer services are sparse in declining counties and much more

TABLE 19

DISTRIBUTION OF EMPLOYMENT AMONG INDUSTRIAL SECTORS FOR OUTLIERS, BY COUNTY LOCATION, 1977

	Remote		Tier		Corridor		Adjacent		Adjacent/ Corridor	
	Lo	1/5 HI	Lo	1/5 HI	Lo	1/5 HI	Lo	1/5 HI	Lo	1/5 HI
Agribusiness	0.5	0.4	0.8	0.7	0.3	1.3	0.6	0.8	0.4	1.2
Mining	5.2	8.7	1.8	7.6	2.5	5.2	4.1	9.8	2.0	7.7
Construction	3.2	4.8	2.7	5.0	3.7	5.4	2.0	4.8	3.5	6.7
Traditional Durables	5.1	4.5	1.2	1.2	6.8	2.5	3.3	2.5	5.7	4.1
Traditional Non-Durables	32.3	13.2	46.7	12.3	23.4	15.0	38.9	13.0	27.8	8.6
Emerging Durables (New Technologies)*	8.3	7.9	4.4	6.4	11.8	5.7	10.8	5.1	15.6	5.9
Emerging Non-Durables	4.6	2.5	6.0	3.3	11.6	4.4	3.6	4.5	8.8	4.8
Urban Services	7.5	12.8	5.9	19.0	7.3	12.0	6.3	11.6	6.8	13.9
Producer Services	7.4	12.7	8.2	9.8	7.0	13.4	6.7	13.1	6.5	11.2
Consumer Services	25.9	32.6	22.4	34.7	25.8	35.1	23.8	34.9	22.9	35.9

* Employment in New Technologies is also included in Emerging Durables

prevalent in growth counties. Whether the declining counties are failing to grow because they lack those services, or whether the services are missing because lagging economies cannot sustain sufficient demand remains an unanswered question. In either case, the figures suggest that there is a cycle of decline occurring which will not be easily reversed.

Growth of Industrial Sectors

Although the relative growth in virtually all industrial clusters was higher in metro areas than in nonmetro areas, the patterns of growth for manufacturing and service industries between 1977 and 1982 were remarkably similar for metro and nonmetro areas. Figure 18 shows employment changes by location for the eleven industry clusters. In both metro and nonmetro areas, the fastest growing service industries were producer and consumer services. And in both metro and nonmetro areas, emerging durables led the manufacturing industries in growth, followed by emerging nondurables. Traditional durables showed a slight decline, and traditional nondurables a larger decline. The only notable reversal between metro and nonmetro patterns was that *traditional nondurables declined faster in metro areas—possibly fleeing higher costs in those areas or reducing employment in more automated plants.*

Based on data shown in Figures 19 and 20, it is obvious that the growth profiles of remote, adjacent and adjacent/corridor counties resemble each other and the metro/nonmetro profiles rather closely. These are the nonmetro locational groups with the fastest overall growth, as well. The relative size of sector growth differs only slightly in remote counties (somewhat lower growth of urban services) and in adjacent counties (somewhat higher growth of urban services), but the patterns are similar.

Tier and corridor counties exhibit growth profiles that are somewhat different than the nonmetro growth profile. Corridor counties showed a strong durable manufacturing sector; they were the only nonmetro group to actually gain employment in traditional durables. They showed the highest relative growth of any locational group in emerging durables. Tier counties experienced extremely severe rates of decline in traditional durables and the slowest growth rate of any group in emerging durables. The emerging nondurable cluster grew fastest in tier counties, and slowest in corridor counties.

The complementarity of growth rates in manufacturing clusters may indicate certain comparative advantages tier and corridor counties exhibit—corridors appear to have advantages for durable manufacturing, especially for emerging durables, and tiers seem to have advantages for emerging nondurables. The restructuring that is apparently occurring across clusters is shown in Figures 19 and 20.

The relative growth of service clusters in nonmetro counties more closely paralleled the metropolitan experience than did manufacturing. Among nonmetro counties, tier and corridor counties had the slowest growth in services, showing strong growth only in consumer services. Their relatively high growth in consumer services follows from the rapid "filling in" of an historic gap in the local economy—retail stores and other establishments serving resident populations. But the lower growth rate in producer services may also be the legacy of major branch plants in traditional industries whose employment levels plummeted during this period.

One more industrial sector merits special attention—new technology—which is a subset of the emerging durables sector. Figure 18 shows that new technology grew much faster in metro than in nonmetro areas. The differences between metro and nonmetro growth was greater here than in any other sector, but differences among nonmetro locations were ever greater. The adjacent/corridor counties equalled the metro areas in growth; remote and corridor counties both showed rates approximately equal to the overall nonmetro rate; and tier and adjacent counties lost employment in new technology during the period. Interstate highways seem to be a factor in technology-related growth (although they do not explain the strong performance of remote counties).

Influences of Industrial Clusters on Growth

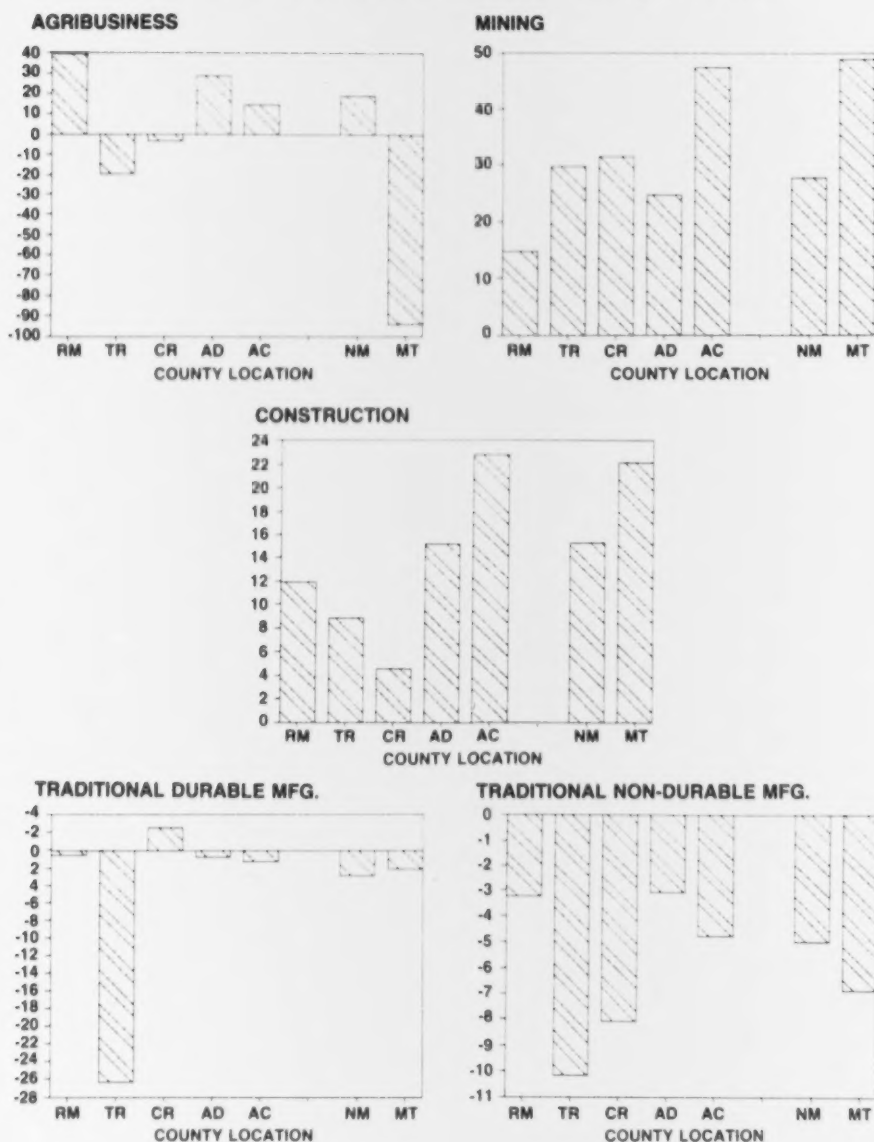
Another way of looking at the relative strength of industrial clusters is to examine the contribution that each industry made to the total growth in each location. This takes into account not just the rate of growth, but also the relative size of the industry cluster. For example, the fastest growing service sector region-wide is producer services. But consumer services accounted for a much higher percent of net job growth, because that cluster has a larger employment base.

The industries that contributed the most to job growth for the region as a whole, shown in Table 20, were the service industries: consumer services accounted for 39 percent of all metro and nonmetro net job growth, producer services accounted for 20 percent, and urban services 13 percent, for a total of 72 percent. Other sectors which made substantial contributions were mining (16 percent of net new jobs) and emerging durables (10 percent). The other two growth sectors, construction and emerging nondurables, accounted for 8 percent of net new jobs. (Note that the contributions of the growing sectors add to more than 100 percent, since the losses of the declining sectors—traditional manufacturing and agriculture—must be subtracted from total growth to equal 100 percent of net new jobs.)

In nonmetro areas, the service clusters, especially consumer services, emerge as even larger contributors to growth than in the region. Consumer services account for 50 percent of net new jobs, and all services total 80 percent. This probably can be traced to a steady "filling in" across nonmetro counties of services which previously were provided by metro market counties.

The larger contribution of the service sectors in nonmetro counties compensates for two other metro-nonmetro differences. First, mining was a relatively weaker job generator in nonmetro than metro areas (except in tier counties, where it equalled 22 percent of net new jobs.) It accounted for 9

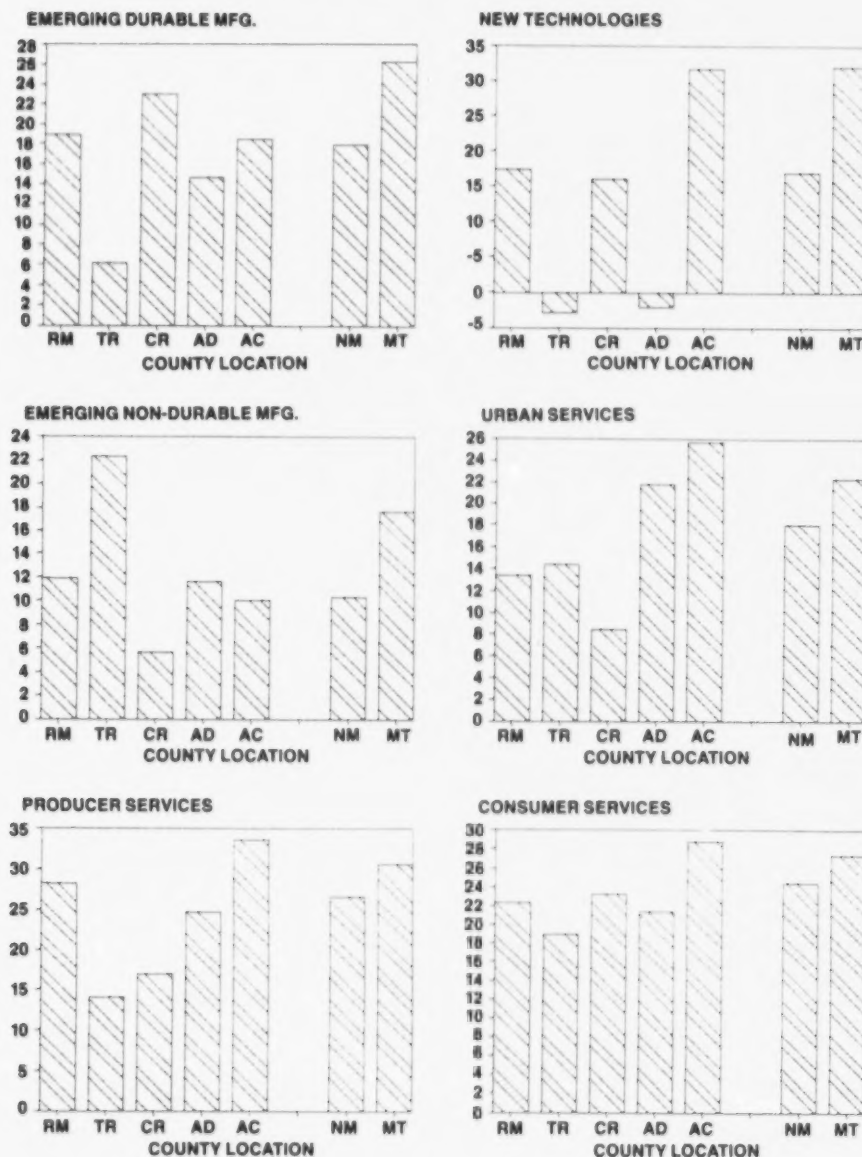
FIGURE 18
PERCENT CHANGE IN EMPLOYMENT BY LOCATION
CATEGORIES FOR INDUSTRY CLUSTERS, 1977-1982



percent of net new jobs in nonmetro areas and 17 percent in metro areas.

The other cluster where substantial metro-nonmetro differences appear is traditional nondurables. While that cluster is responsible for net job loss region-wide, its losses are relatively greater in nonmetro areas. As noted earlier, metro areas experienced a higher rate of decline in traditional nondurables, but because of this cluster's historic concentration in rural areas, those areas were affected more strongly by the decline. In metro areas, jobs lost in traditional nondurables detracted from total employment growth by two percent, while in

FIGURE 18 (CONT.)
PERCENT CHANGE IN EMPLOYMENT BY LOCATION
CATEGORIES FOR INDUSTRY CLUSTERS, 1977-1982



nonmetro areas traditional nondurables took the equivalent of nine percent from net growth. This finding corroborates reports in the press that as traditional southern manufacturing industries consolidate their operations in response to heavy import competition, plant closings are more widespread in nonmetro than metro areas. Firms in these industries appear to be abandoning their older, nonmetro facilities in favor of upgrading and modernizing their metro plants.

Examination of the nonmetro counties supports the conclusions discussed in the previous section: similarity of growth patterns in remote, adjacent, and

TABLE 20

PERCENT COMPOSITION OF EMPLOYMENT CHANGES BETWEEN 1977

Location	Agriculture	Mining	Construction	Traditional Durable	Traditional Nondurable	Emerging Durable
Remote	1.71	7.69	3.20	-0.18	-5.62	11.49
Tier	-2.21	21.29	5.52	-35.44	-53.66	11.24
Corridor	-0.13	8.47	1.56	1.18	-16.22	17.07
Adjacent	1.68	9.77	3.99	-0.25	-6.96	8.28
Adjacent/Corridor	0.57	9.58	5.56	-0.33	-6.47	10.38
Nonmetropolitan	-0.86	9.27	4.20	-0.99	-8.83	11.29
Metropolitan	-1.51	17.14	5.11	-0.23	-2.15	9.05
Total	-1.06	15.62	4.94	-0.38	-3.43	9.48

*Included in Emerging Durables.

adjacent/corridor counties, and differences in manufacturing growth between corridors and tiers. A few further observations can be made by reexamining the varying degrees to which industry sectors contribute to growth in different nonmetro locations.

An interesting trend appears in the metro-oriented counties (adjacent and adjacent/corridor) concerning the emerging durables cluster. While that cluster's contribution to growth appears roughly equal in both locations (it accounts for 8 percent of net new jobs in adjacent counties and 11 percent in adjacent/corridor counties), it looks very different on the basis of the new technology component. Adjacent/corridor counties gained 8.5 percent of their new jobs from new technology, while adjacent counties lost 0.9 percent of total growth due to net loss in the cluster. After subtracting new technology, the remaining emerging durables industries (fabricated metals, transportation equipment, and miscellaneous) contributed little to adjacent/corridor counties and considerably more to adjacent county growth. These differences may signal a minor metro-oriented division of labor, with technologically sensitive industries seeking interstate access to nearby airports, communication and business centers, or vehicular shipping. The remaining emerging durables perhaps depend more on metro labor pools and different means of transportation (rail or water), and consequently can benefit from cheaper land and lower taxes found in the counties with poor access to interstate highways.

The apparent shift in traditional durables from tiers to corridors was noted in the previous section, as well as the boost tier counties' economies received from emerging nondurables. An additional observation from Table 19 is the high loss of jobs in traditional nondurables experienced by tier counties. Job loss in that sector alone in tier counties equalled 56 percent of those counties' net employment gain.

AND 1982 BY INDUSTRIAL CLUSTER, FOR EACH LOCATIONAL CATEGORY

Emerging Nondurable	Urban Services	Producer Services	Consumer Services	New Technology*	Total
3.29	9.40	20.34	48.68	5.99	100
14.24	23.98	21.44	93.61	-3.89	100
2.91	7.40	15.57	62.19	7.64	100
3.26	15.15	16.75	48.31	-0.88	100
3.46	13.37	16.40	47.47	8.40	100
3.59	12.07	17.50	51.04	6.06	100
3.07	13.47	20.26	35.80	5.89	100
3.17	13.20	19.73	38.73	5.92	100

Summary of Findings

- Although metro counties gained jobs nearly twice as fast as nonmetro counties during the period, they exhibited nearly identical patterns of growth—the same industrial sectors grew fastest and slowest in metro and nonmetro counties.
- Rate of employment growth is inversely related to percent of 1977 employment in manufacturing, and positively related to employment in services.
- Among the manufacturing clusters, concentration of employment in traditional nondurables showed the strongest relationship to overall employment decline.
- Adjacent/corridor counties equalled or exceeded metro growth rates in a few clusters—the services, construction, and new technology. All other nonmetro locational groups lagged behind metro growth in all manufacturing and service clusters.
- Manufacturing employment is concentrating more and more along interstate highways in the South. Corridor counties seem to offer advantages for durable manufacturing, both traditional and emerging, while tier counties show the strongest economies in emerging nondurables.
- New technology growth is concentrated in metro areas and along interstate corridors, especially in the adjacent/corridor counties. Adjacent counties not on an interstate and tier counties experienced a net loss of new technology jobs during the period.

VIII CONCLUSIONS, COMMENTS, AND RECOMMENDATIONS

The findings presented in this report, while not conclusive, point to some important trends and issues. They also raise additional questions which, if answered, would provide states and localities with better planning tools. Simply updating the data file used for this study and repeating the analysis, for example, would provide better information about the effects of the recession. However, what has been learned from this study is quite valuable for understanding how the occupational opportunities in the nonmetro South are changing. Despite the lack of current data and the large variation within the nonmetro classifications, as Charles Babbage, inventor of the modern computer, once said, "errors using inadequate data are much less than those using no data at all."

Is a restructuring of the region's nonmetropolitan economic base actually occurring or do the shifts in employment represent short-term cyclical consequences of a recession?

The employment patterns between 1977 and 1982 indicate that some long-term restructuring of the region's economy is occurring, both between metro and nonmetro areas and among industrial sectors. The first phase of this project demonstrated the former by identifying differential rates of growth in specific industrial sectors for metro and nonmetro areas. In metro areas, an industry sector was 14 times as likely to have grown between 1977 and 1982, relative to its state and the nation, as it was in nonmetro areas. Few instances of the reverse were observed. In fact, more than 80 percent of the employment growth between 1977 and 1982 in the 13 states occurred in metro counties, even though they had only 68 percent of the total population.

Industrial shifts within nonmetro areas were demonstrated by the differences in growth rates between traditional and emerging industries and between manufacturing and service industries. Industries that formerly employed large numbers of southern workers in nonmetro areas—traditional nondurable manufacturing—declined the most. All service clusters grew relatively fast—nearly as fast as in metro areas. While some of the decline in manufacturing is attributable to the recession, information about employment patterns since 1982 suggests these industries are still well below their previous employment levels and are unlikely to recover with the same labor needs.

How do conditions in the nonmetropolitan South differ from conditions elsewhere and what does that portend for the future?

The demographic or economic state of the nonmetro South is well known. It has been, and remains, the most rural region in the nation in terms of percentage of its population residing in rural areas. Moreover, it is the only region with a large rural black population. Among metro and nonmetro regions of the nation, the rural South remains the poorest and weakest in human resources. It has, for example, the lowest per capita income, the highest rates of poverty, the lowest levels of educational attainment, and the fewest doctors.

Decades of government programs to bring the region nearer parity have been successful, up to a point. The gaps have become much smaller on most economic measures, but in recent years that progress has ebbed. As national competition for better jobs with higher human resource requirements heats up, both the reality and perceptions of the rural South's social and demographic characteristics will limit economic success.

Does the proximity of a nonmetropolitan county to metropolitan areas or to interstate highway interchanges influence its growth in employment?

A basic premise in the design of this project was that access to interstate highway systems and proximity to metro centers have a measurable and positive impact on growth in employment. Interstate highways appear to influence growth, particularly where the county with the interstate is also adjacent to a metro area. In the slowest growing states (those in the central part of the SGPB region), a county's access to interstate highways was more important than in fast growing states.

Remoteness from both interstates and metro centers, on the other hand, seems to be a deterrent to growth. Although the average growth of remote counties within states appeared strong, in most states it was the result of a few exceptional counties raising the average. The median growth rates were considerably lower and almost one in four remote counties lost employment between 1977 and 1982.

Differences among county locational categories were not tested systematically. Statistical analyses might clarify some of the results by proving or disproving the significance of the variations—at least for those comfortable with t-scores, chi squares, and correlation coefficients. Perhaps even more useful, though, would be analyses by people within each of the states to explain particular state patterns and to explain the outliers—those counties that grew or declined at extreme rates. State analysts may also be better able to categorize their counties by a more pragmatic sense of access to interstates than the somewhat arbitrary definition used in this project.

Are there conditions in or characteristics of nonmetropolitan counties that help explain or predict patterns of employment growth?

There were clear associations of some county characteristics with growth, but it is not possible to say whether those characteristics were causes of growth or results of growth, or whether the relationships are spurious. First, growth increased as (a) levels of educational attainment increased; (b) population growth increased; and (c) percent black population decreased. Slow growth between 1977 and 1982 was also associated with higher unemployment rates in 1982.

Some factors that did not show linear correlations still showed considerable variations at the extremes, i.e., between the slowest and fastest growing counties. Slow growth was linked to high minority population, few physicians per capita, and low per capita income. The greater the variation among counties within a state, the stronger the effects. This was particularly true of educational expenditures per pupil, which varied with growth only in those states where the differences in expenditures per pupil among counties was large.

Among the fastest and slowest growing counties there were many intriguing anomalies, e.g., counties that grew rapidly despite large black populations or low educational attainment levels. Many of these counties had relatively low per

capita income and high unemployment. Similarly, there were slow growth counties with high per capita income and low unemployment. Some of the results indicated by the former could be explained by targeted state and federal programs that improved conditions but left the recipient counties still far below regional economic norms. Some instances of the latter could be explained by a plant closing where unemployment benefits kept economic indicators temporarily high or where many displaced or discouraged workers left the county. It would be useful to identify some of the fast growth counties which have characteristics generally associated with decline in order to find out why they have been relatively successful in increasing employment. This information, however, requires a case study approach.

How do county characteristics, including location, influence growth patterns of particular industries and, conversely, how is industrial mix related to patterns of employment growth?

The data verify that nonmetro counties have a different industry mix than metro counties, with greater concentration in manufacturing—especially nondurable goods—and lower concentration in urban and producer services. Differences in the distribution of employment among nonmetro locational categories, however, were almost negligible. There were just a few notable differences among locations in specific industry clusters. For example, construction and urban services show high growth in counties adjacent to metro areas, indicating a continuing urban sprawl. New technologies show highest growth along the interstates, especially in counties near metro centers. Further, the analysis of counties with USDA-designated economic concentrations shows that those with the highest proportion of government employment grew the fastest.

There is a strong association between industry mix and employment growth. Higher growth generally correlates with relatively low concentration of manufacturing and relatively high concentration of services. The implication is that the key to the growth of the nonmetro South is its ability to capture a larger share of service industries. There are, however, on-going debates over the extent to which the region can prosper as a service economy when goods-producing industries have generated such a large part of the demand for services, and manufacturing undoubtedly will continue to play an important role in the economy.

The prospects for manufacturing *output* are better than those for manufacturing *employment*. Although many jobs have been lost to international competition, automation accounts for a large part of the decline in employment in some traditional industries. In locations where manufacturing becomes more innovative and flourishes with a smaller workforce, producer services also will grow. However, the secondary employment generated by a more automated manufacturing plant—those serving its service, material, and equipment needs—is less likely to be provided locally. If increased automation leaves large populations unemployed, the multiplier spiral for local consumer services will inevitably turn downward and the area's overall economy will suffer.

The service economy, however, is more than a just multiplier of the goods-producing sectors. It includes a wide range of industries, some dependent on consumer spending, others dependent on the needs of the industrial sector, and others that are considered basic industries (such as finance, insurance, and software development), exporting their own brands of "goods." It is the last that are likely to expand local economies the most, and the most apt to prefer metro locations. The quality of jobs in those service industries also are more likely to be at the higher wage end of the service spectrum, exacerbating wage differentials between urban and rural areas.

The problem facing the nonmetro South is the same problem that faced rural England in the nineteenth century with the discovery of the power loom. Total employment grew, but it grew in new locations. Future growth in the nonmetro South may depend on its ability to build a different sort of infrastructure, more dependent on improved human resources, in order to retain the jobs that will undoubtedly replace standardized manufacturing.

What federal, state or local policies would be most likely to improve the long-term economic prospects for the nonmetropolitan South?

This study has identified certain characteristics of nonmetro counties that seem to be associated with growth and decline in employment. Public policymakers might be prudent to target assistance to the types of counties that lack good prospects for growth—those with high minority population, low income, low education levels, or high concentrations of traditional manufacturing or agricultural employment. Different strategies would be appropriate for different areas, depending on local demographic and economic conditions and opportunities.

In January 1986, the Southern Growth Policies Board will join the Southern Rural Development Center and the University of Georgia's Cooperative Extension Service to host a conference on "Emerging Trends in the Economy of the Nonmetro South." That meeting will bring together state administrators, policy analysts, and community leaders to discuss potential state and local strategies for new growth in light of the findings of this study.

NOTES

1. John Herbes, "Urban Centers' Population Drift Creating Countryside Harvest," *New York Times*, March 23, 1980.
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3. William E. Schmidt, "Rural Southern Towns Find Manufacturing Boom Fading," *New York Times*, March 21, 1985, pg.1.
4. Bureau of the Census, *County and City Data Book 1983*, 10th Edition, (Washington DC: U.S. Department of Commerce, 1983).
5. James P. Miller, "Interstate Highway: Influencing Rural Jobs?" *Rural Development Perspectives*, U.S. Department of Agriculture, March 1980.
6. Gerald Carlino and Edwin S. Mills, "Do Public Policies Affect County Growth?" *Business Review*, Federal Reserve Bank of Philadelphia, July/August 1985.
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Appendix A

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Appendix B

Sources of Data

The first part of the analysis (described in more detail in the Phase I Report of this project) drew upon the Industry, Employment, Hours, and Earnings data from the Bureau of Labor Statistics of the U.S. Department of Labor. This tape contains employment, earnings, and hours worked by quarter for all states and metropolitan areas from 1939 to 1982. Nonmetro data for each state was computed by subtracting all metro data from state totals. These data were used in the first phase of this study to compare aggregate state metro and nonmetro growth.

A second data source was derived from the U.S. Commerce Department's County Business Patterns for 1977 and 1982. The records used enumerate employment, payroll, establishments, and establishment size for each county in the SGPB region and for every two-digit Standard Industrial Code. They do not, however, include government employment. The years 1977 and 1982 were selected to delimit the period of employment change because they represented the earliest and latest years for which data were available on diskettes for microcomputers - which were used in this analysis. Although both an earlier base year and a later, nonrecession, final year would have been preferred, this five-year period provides a sufficient span for analyzing structural changes and comparing county growth patterns.

Access to this information in sparsely populated areas is restricted by the guarantee to respondents of confidentiality. Such data are "suppressed" in counties where there are so few businesses in a given industrial classification that a company's identity would be revealed. This results in blank cells for many industry sectors in counties where there actually was employment. Since this analysis focuses on small counties and depends on complete employment figures, data files were used which provide estimated employment figures for all suppressed data in the County Business Patterns (obtained from a commercial firm, National Planning Data Corporation) (See Appendix C). The employment data for the two years were aggregated by selected industrial categories and combined in a single file.

Third, the U.S. Bureau of the Census supplied demographic and economic characteristics of counties for 1980 on diskette. These data reproduce the county level information included in the County and City Data Book, 1983,⁴ from the U.S. Census Bureau. Those data determined to be most relevant to the questions raised in this study—population change, demographic characteristics, labor market descriptors, and indicators of educational attainment and wealth—were merged with the employment data for 1977 and 1982. For selected states, federal, state and local expenditures and enrollments were added by county to the file to estimate the impact of different investments in public education on employment growth.

A fourth source was the U.S. Department of Agriculture (USDA) classification of counties by selected economic and demographic features. Two separate classification schemes were used: the first classifies nonmetropolitan counties by the size of their urban population and whether they are adjacent to a metropolitan area; the second identifies special types of counties, with a specified proportion of income derived from agriculture; proportion of employment in manufacturing; percent of the population below poverty over a

20 year period; percent of in-migrating elders; and proportion of work force employed by government.

Fifth, state road maps were used to specify county locational characteristics relative to interstate highways, including quality of access to the interstate highways, i.e., number and location of interchanges.

Appendix C

Industry Classifications

<i>Sector</i>	<i>Industry Components</i>
1	Agriculture and Resources Agricultural Services Forestry
2	Mining Metal Mining Anthracite Mining Bituminous Coal and Lignite Mining Oil and Gas Extraction Nonmetallic Minerals, Except Fuels
3	Construction General Building Contractors Heavy Construction Contractors Special Trade Contractors
4	Traditional Durables Furniture and Fixtures Stone, Clay, and Glass Products Primary Metal Industries
5	Traditional Nondurables Food and Kindred Products Tobacco Manufacturers Textile Mill Products Apparel and Other Textile Products Lumber and Wood Products Paper and Allied Products Leather and Leather Products
6	Emerging Durables Fabricated Metal Products Machinery, Except Electrical Electric and Electronic Equipment Transportation Equipment Instruments and Related Products Miscellaneous Manufacturing Industries
7	Emerging Nondurables Printing and Publishing Chemicals and Allied Products Petroleum and Coal Products Rubber and Miscellaneous Plastics Products

- 8 Urban Services
 Local and Interurban Passenger Transit
 U.S. Postal Service
 Transportation by Air
 Communications
 Electric, Gas, and Sanitary Services
 Building Materials and Garden Supplies
 Credit Agencies Other than Banks
 Security, Commodity Brokers, and Services
 Insurance Carriers
 Insurance Agents, Brokers, and Services
 Real Estate
 Combined Real Estate, Insurance, Etc.
 Hotels and Other Lodging Places
 Miscellaneous Repair Services
 Legal Services
 Membership Organizations
- 9 Producer Services
 Railroad Transportation
 Trucking and Warehousing
 Water Transportation
 Pipe Lines, Except Natural Gas
 Transportation Services
 Wholesale Trade - Durable Goods
 Wholesale Trade - Nondurable Goods
 Holding and Other Investment Offices
 Business Services
 Miscellaneous Services
- 10 Consumer Services
 Banking
 General Merchandise Stores
 Food Stores
 Auto Dealers and Service Stations
 Apparel and Accessory Stores
 Furniture and Home Furnishings Stores
 Eating and Drinking Places
 Miscellaneous Retail
 Personal Services
 Auto Repair, Services, and Garages
 Motion Pictures
 Amusement and Recreation Services
 Health Services
 Educational Services
 Social Services
 Museums, Botanical, Zoological Gardens
- 11 New Technology
 Machinery, Except Electrical
 Electric and Electronic Equipment
 Instruments and Related Products

Appendix D

A Short Description of the Creation of National Planning Data Corporation's Enhanced County Business Patterns (ECBP) File Using the "Iterative Proportional Fitting" (IPF) Technique

The following is some information pertaining to NPDC's "Enhanced" County Business Patterns (ECBP), as opposed to the regular County Business Patterns (CBP) file from the Census Bureau.

1. The ECBP is a file created by NPDC through additional processing of the CBP that involves estimating the missing data. A brief description of the estimating technique we employed, which incorporates the "Iterative Proportional Fitting" method, is provided in this information sheet.

NPDC has converted the current year of the CBP to the ECBP as well as selected prior years. At no time during the conversion process did NPDC have access to any special Census Bureau data files other than the publicly available County Business Patterns data.

2. The regular CBP never suppresses the count of total establishments or the count of establishments by employment size range. What is frequently suppressed (65% at the county level) are counts of total number of employees (for the week including March 12) and first quarter and annual payroll figures.

In the case of suppressed employee data, the Census Bureau provides a suppression flag consisting of an "alpha" code indicating the range in which the total employee number is supposed to fit:

A: 0-9	E: 250-499	H: 2,500-4,999	K: 25,000-49,999
B: 20-99	F: 500-999	I: 5,000-9,999	L: 50,000-99,999
C: 100-249	G: 1,000-2,499	J: 10,000-24,999	M: 100,000 or more

Thus a user of the Census Bureau CBP could guess a number of employees for a particular SIC in a particular geography based on this flag.

Employees and payroll are always suppressed together, so the suppression flag for payroll will be the same as for employees.

3. NPDC created the ECBP file so that a database would be available in which the employee suppression flags have been replaced by estimated counts. These estimates are within the range specified by the suppression flag and have been adjusted (up or down) so that any "filled in" numbers are internally consistent with other unsuppressed subtotals and totals in the CBP file. We sometimes use the term "additive" when we refer to this internal consistency.

The additivity concepts we are referring to are the following:

- A. For a given geography (county or state) the number of employees for each set of 4-digit SICs would sum to the corresponding 3-digit SIC for that geography. Each set of 3-digit SICs would add to the 2-digit for the particular geography.
 - B. For a particular SIC code (2-, 3-, or 4-digit) the number of employees in each county of the state should sum to the state total for that SIC, and the number of employees in each state should sum to the U.S. total number of employees for that SIC code.
 - C. Any replacement of a suppression flag with an estimated count is done so as to meet both conditions A and B simultaneously.
4. The mathematical technique we have used to come up with a consistent set of numbers is known as the "Iterative Proportional Fitting" (IPF) method. It is an accepted and proven technique for this type of application. It is also a "computer (CPU) intensive" process involving a complex set of "checking" algorithms. In our use of the IPF methodology we adhere to the following guidelines:
- A. We never change "real" (unsuppressed) data that appears on the original Census Bureau reels.
 - B. Likewise, when we first use a "real" number to replace an employee suppression indicator, this "real" number is never allowed to be greater than the upper limit or less than the lower limit indicated by the code.
 - C. Although the number of establishments is never suppressed by the Census Bureau, there are instances where the number of establishments do not add properly across geography or SIC codes. (For example, the number of establishments for all of a series of 4-digit SICs may not add to the total for the appropriate 2-digit number.) In such instances it is necessary to "correct for the noise" in the Census Bureau file by creating "remainder" SIC codes containing counts that force the number of establishments to add.
 - D. When the difference between a published U.S. 4-digit SIC employee total and NPDC's number (summed from county to state to U.S.) is less than 20 employees and 1% of the total, then "additivity" is satisfied. In those cases where adhering to rules A and B prohibits NPDC's total from agreeing closely enough with the published U.S. total, then a separate list of these differences is maintained.
5. The accompanying table provides an illustration of the complexity of the additivity checking procedures that are employed by NPDC.

PLEASE NOTE: NPDC has not employed the detailed IPF checks on the "filled in" payroll numbers. A payroll number for a particular SIC and geography is determined using the corresponding employee number that is first estimated at the beginning of the IPF procedures. This employee number is multiplied by an average payroll figure for the SIC at the state or U.S. level (whichever is

unsuppressed) to come up with an (aggregate) payroll figure.

Table Showing Additivity Cross-Checks Carried Out on Employee Numbers and Approximate Number of Data Cells for Each SIC/Geography Level

The numbers in the boxes are the approximate number of data cells for each geography/SIC level. Also note that the data that are represented by the top edge (US total, state total, and county total: independent of SIC) and the left edge (2-, 3-, and 4-digit SIC totals for the U.S.) of the drawing are, for all practical purposes, never suppressed.

Each arrow on the chart indicates that the level below or the level to the right should sum to the level to which the arrow is pointing.

	U.S.	State	County
1-digit (total)	1	51	3137
	▲	▲	▲
2-digit SICs	Approx. 50	Approx. 1500	Approx. 37,000
	▲	▲	▲
3-digit SICs	Approx. 300	Approx. 15,000	Approx. 350,000
	▲	▲	▲
4-digit SICs	Approx. 700	Approx. 35,000	Approx. 750,000

The information in this appendix was provided by the National Planning Data Corporation, Southern Region, 14679 Midway Road, Dallas, Texas 75244.

Appendix E

Area Component Analysis Method

The Area Component Analysis (shift share) Method has been used to generate the information supplied by Tables 3-5 in the text. The change in employment by industry for each state between the time periods 1972 to 1982 and 1977 to 1982 may be partially explained by the average growth rate of employment in the entire SGPB region (the reference area) and the average growth rate of employment in each state. The residual, not accounted for by the changes in regional and state employment, provides the relative measure of industrial restructuring.

The theoretical model used is as follows:

Theoretical Model:

$$\Delta E_{ij} = E_{ij}^B \delta o + E_{ij}^B (\delta i - \delta o) + E_{ij}^B (\delta ij - \delta i)$$

E_{ij} = Employment change in i th state j th industry in research period

E_{ij}^B = Employment in i th state j th industry in base year

δo = Average growth rate of total employment in reference area (SGPB)

δi = Average growth rate of total employment in i th state

δij = Growth rate of employment of industry j in i th state

Appendix F

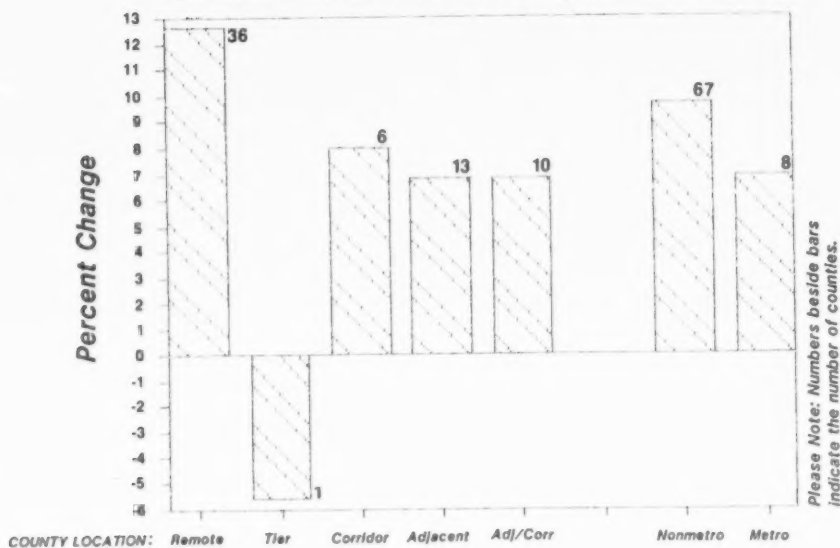
Changes in Employment, by County Location, and Ranges Within Categories, SGPB States, 1977 to 1982

*Please Note: Numbers beside bars
indicate the number of counties.*

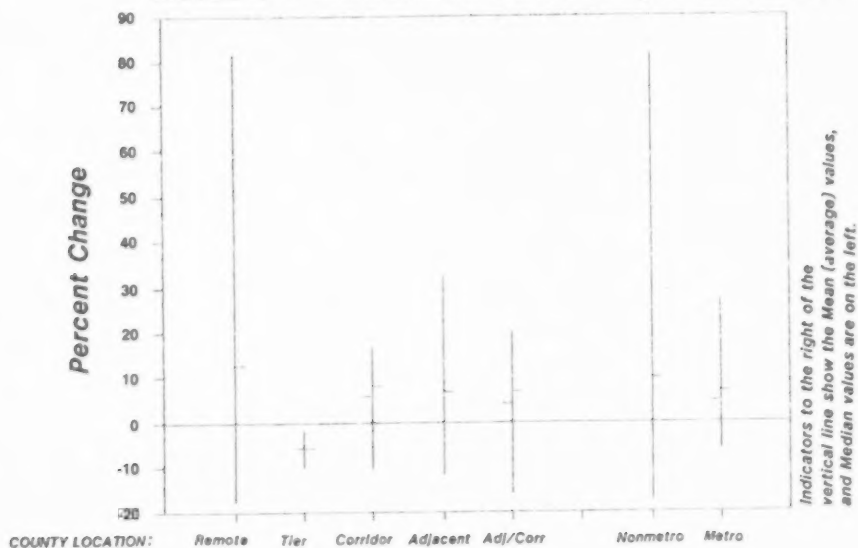
*Indicators to the right of the
vertical line show the Mean (average) values,
and Median values are on the left.*

Arkansas 1977 to 1982

CHANGES IN EMPLOYMENT by County Location



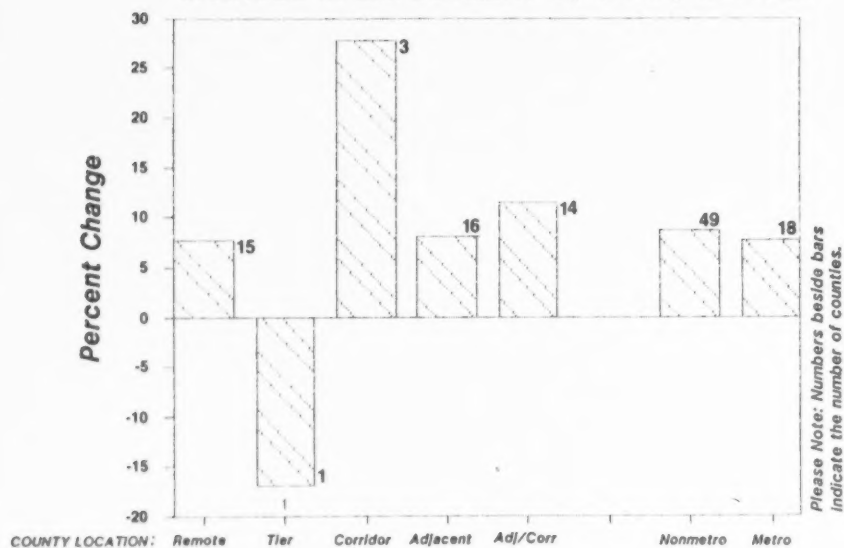
RANGE OF EMPLOYMENT CHANGES by County Location



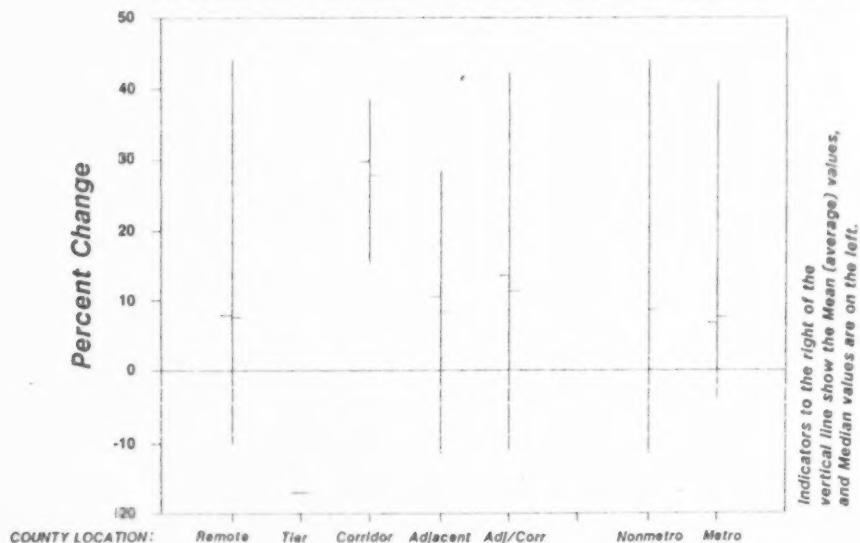
Alabama

1977 to 1982

CHANGES IN EMPLOYMENT by County Location

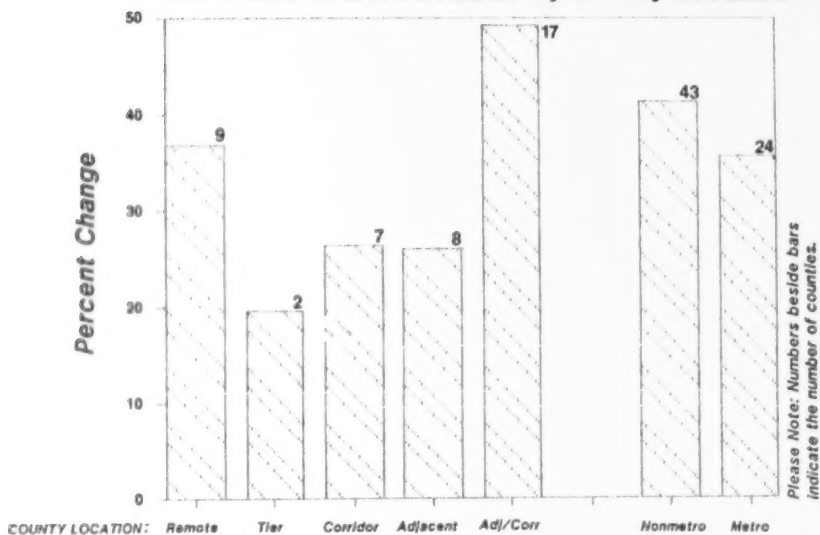


RANGE OF EMPLOYMENT CHANGES by County Location

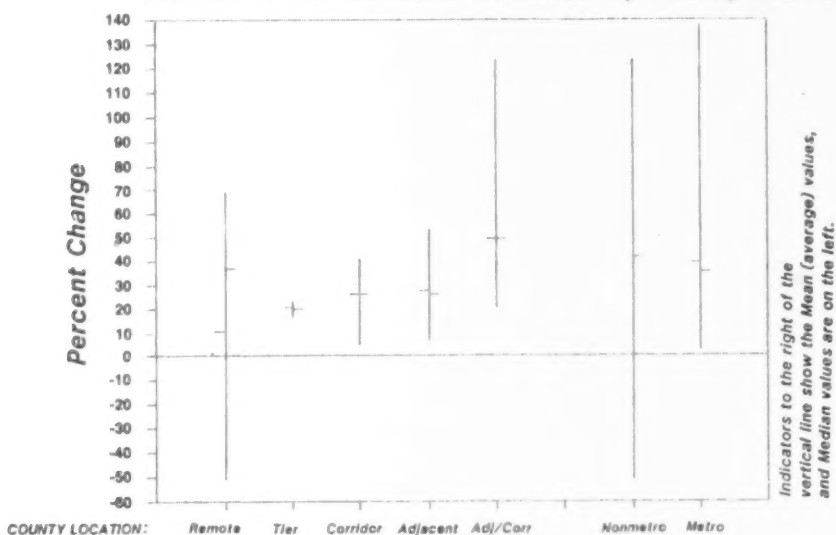


Florida
1977 to 1982

CHANGES IN EMPLOYMENT by County Location

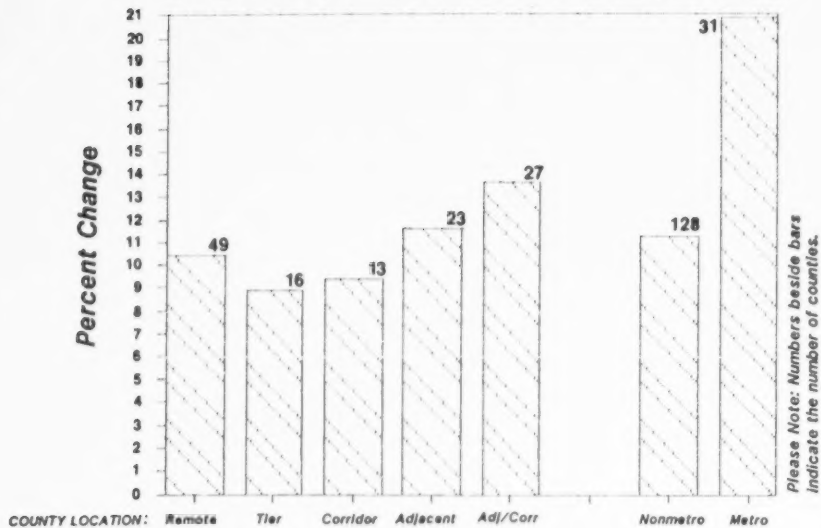


RANGE OF EMPLOYMENT CHANGES by County Location

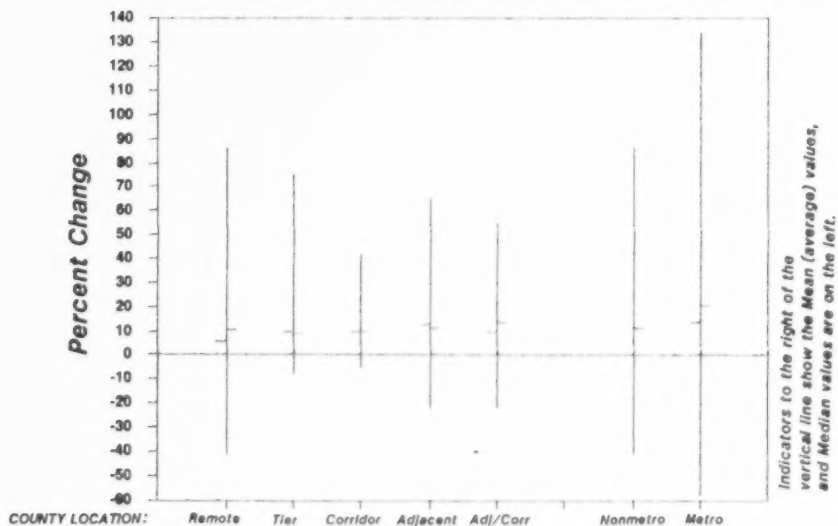


Georgia
1977 to 1982

CHANGES IN EMPLOYMENT by County Location

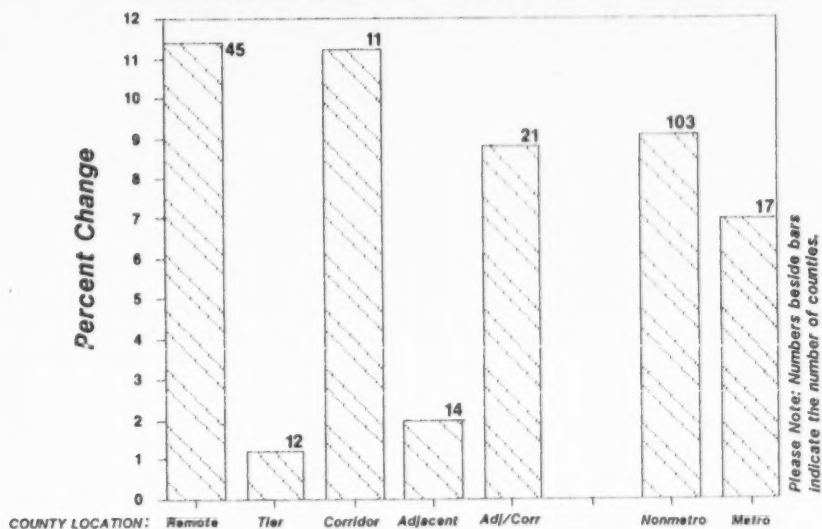


RANGE OF EMPLOYMENT CHANGES by County Location

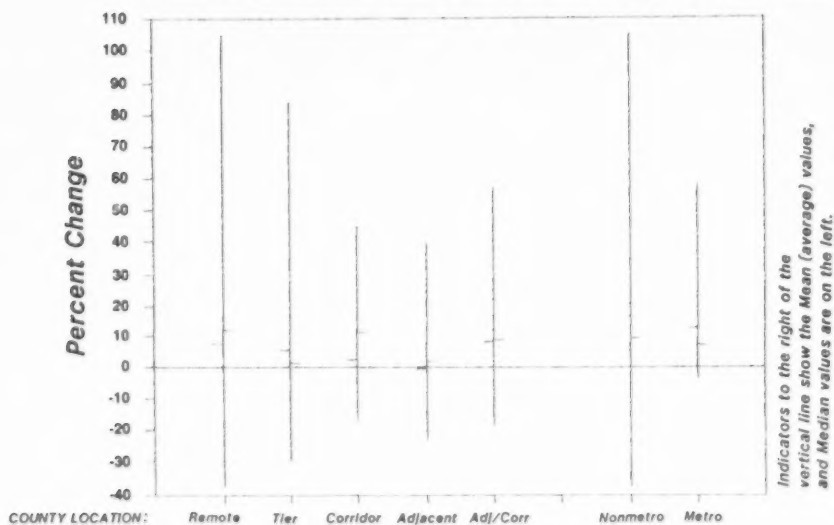


Kentucky 1977 to 1982

CHANGES IN EMPLOYMENT by County Location

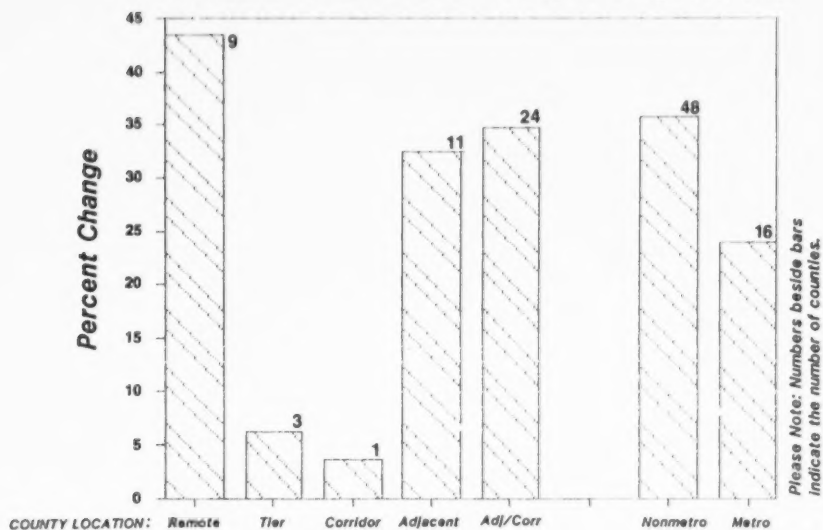


RANGE OF EMPLOYMENT CHANGES by County Location

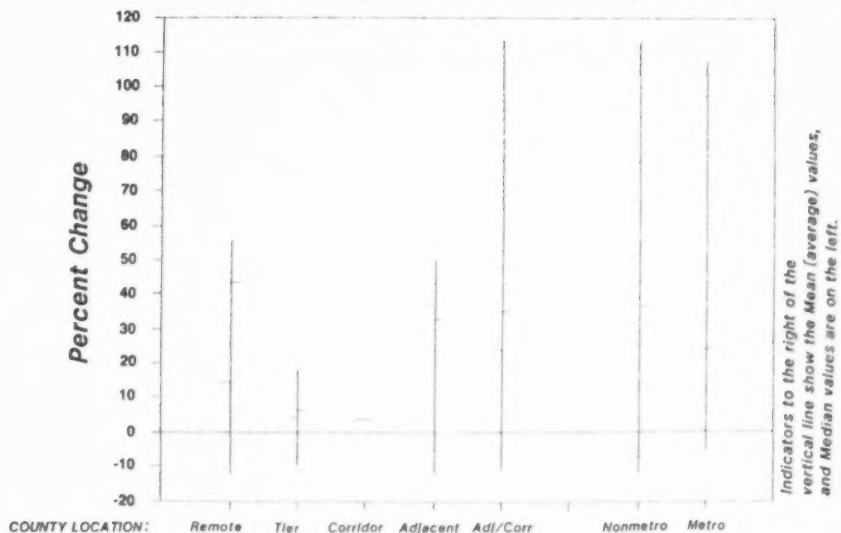


Louisiana 1977 to 1982

CHANGES IN EMPLOYMENT by County Location

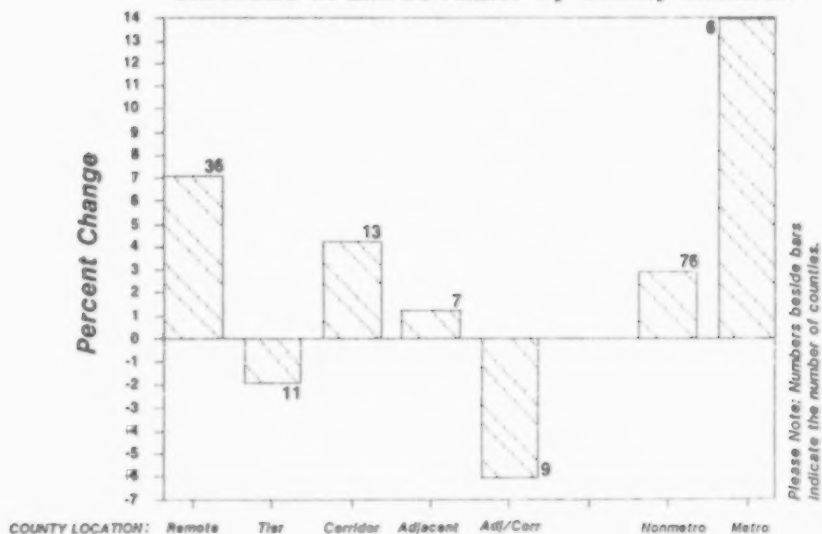


RANGE OF EMPLOYMENT CHANGES by County Location

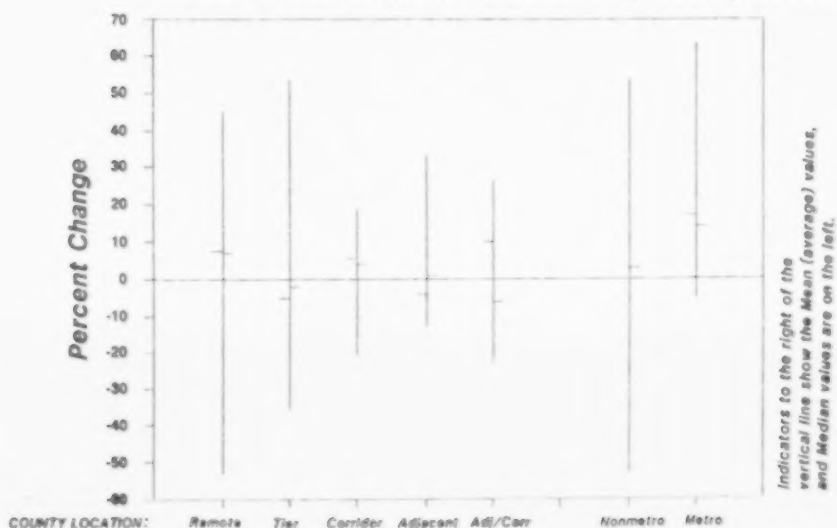


Mississippi 1977 to 1982

CHANGES IN EMPLOYMENT by County Location

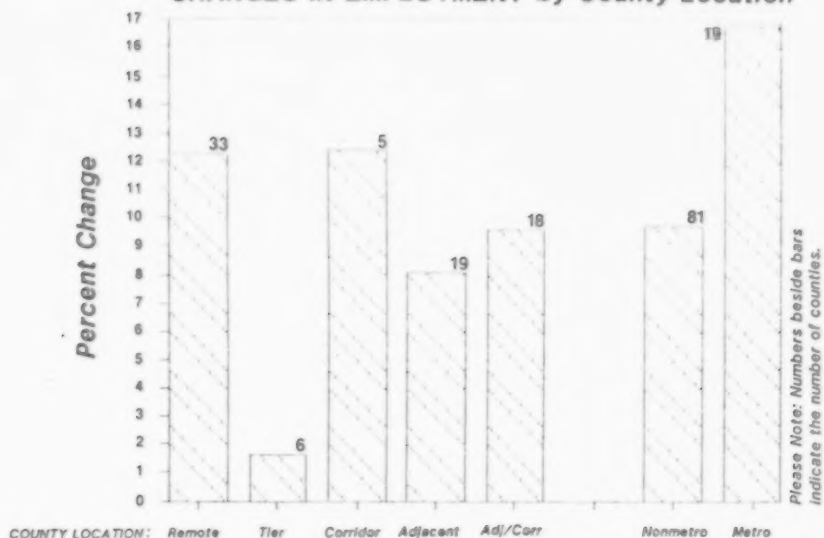


RANGE OF EMPLOYMENT CHANGES by County Location

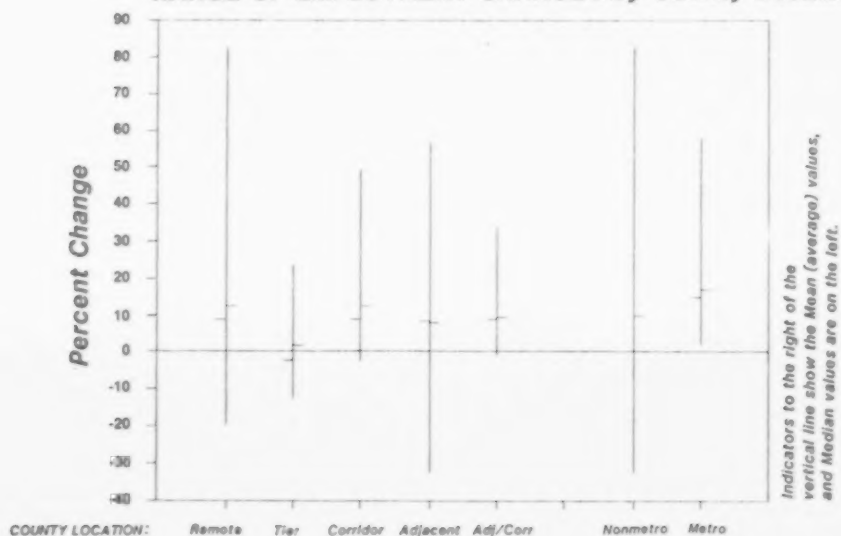


North Carolina 1977 to 1982

CHANGES IN EMPLOYMENT by County Location

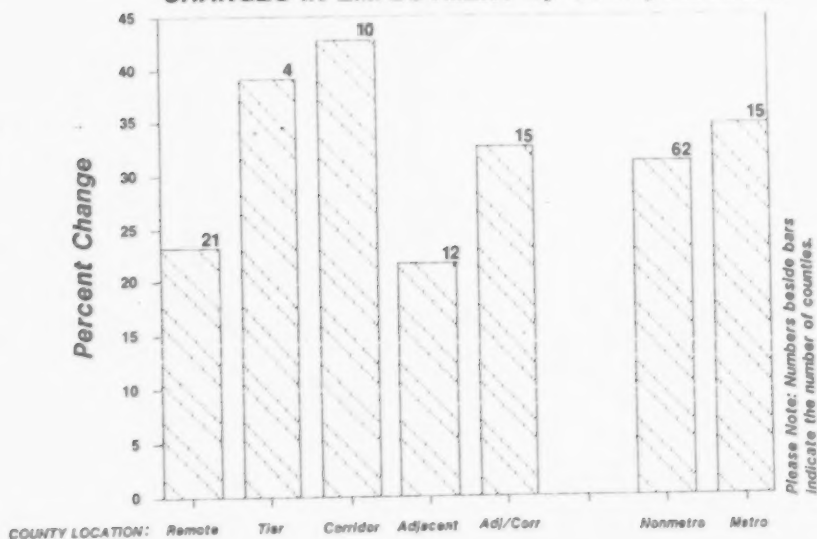


RANGE OF EMPLOYMENT CHANGES by County Location

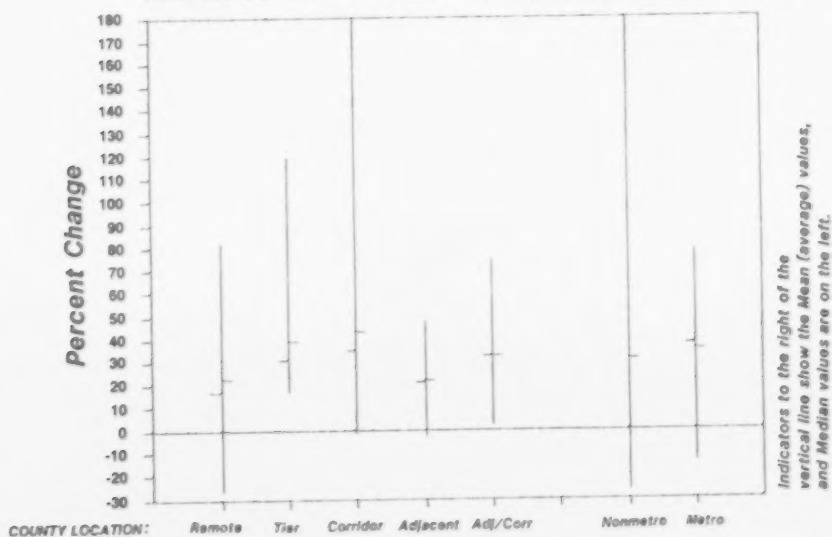


Oklahoma 1977 to 1982

CHANGES IN EMPLOYMENT by County Location

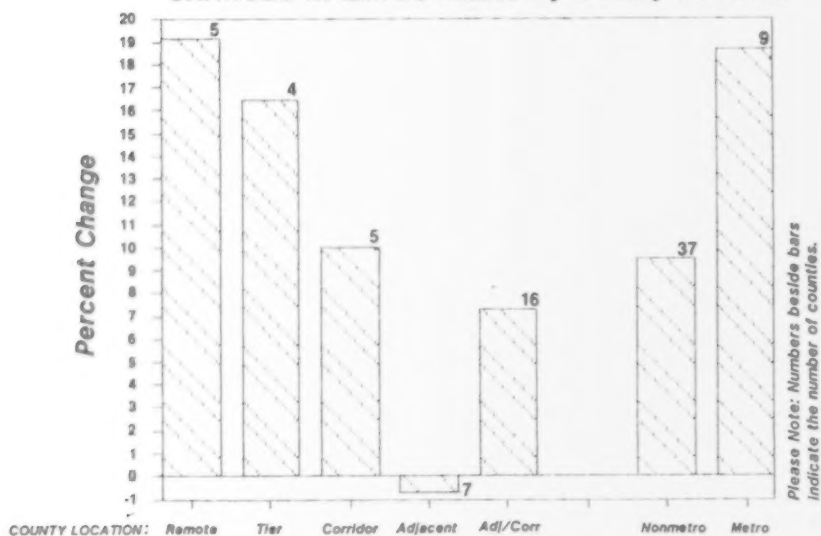


RANGE OF EMPLOYMENT CHANGES by County Location

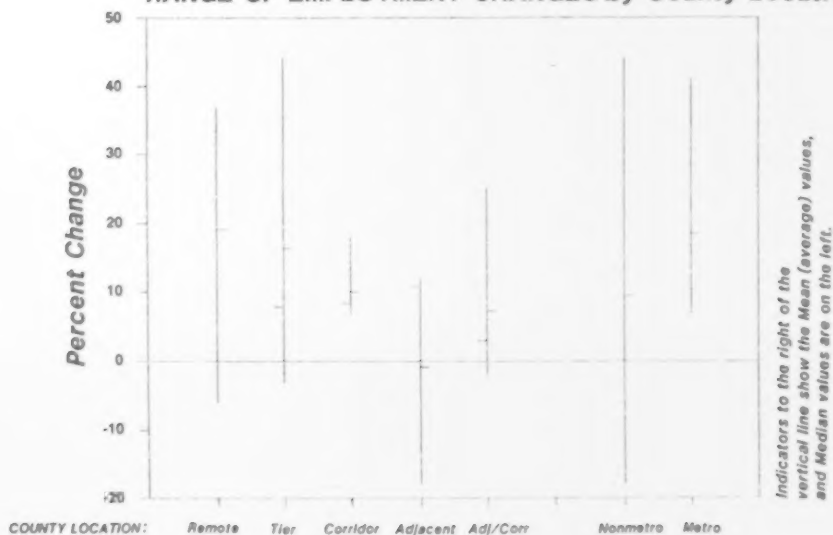


South Carolina 1977 to 1982

CHANGES IN EMPLOYMENT by County Location

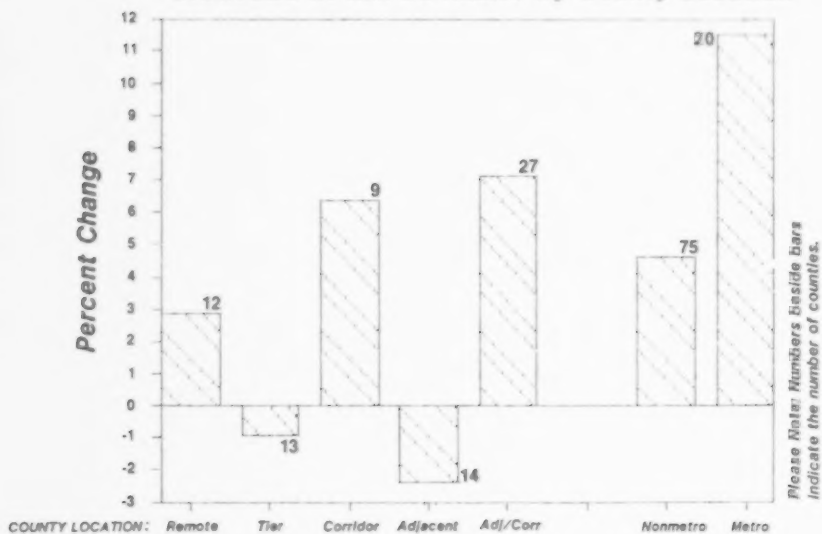


RANGE OF EMPLOYMENT CHANGES by County Location

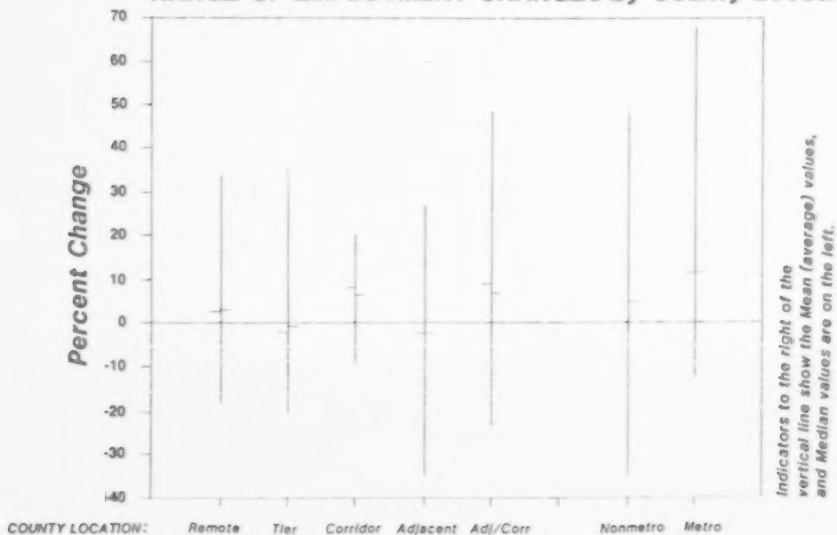


Tennessee 1977 to 1982

CHANGES IN EMPLOYMENT by County Location

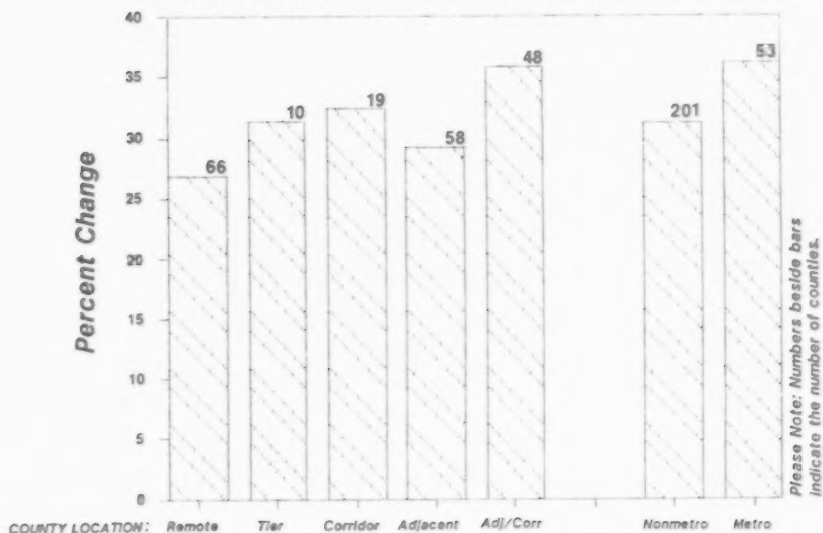


RANGE OF EMPLOYMENT CHANGES by County Location

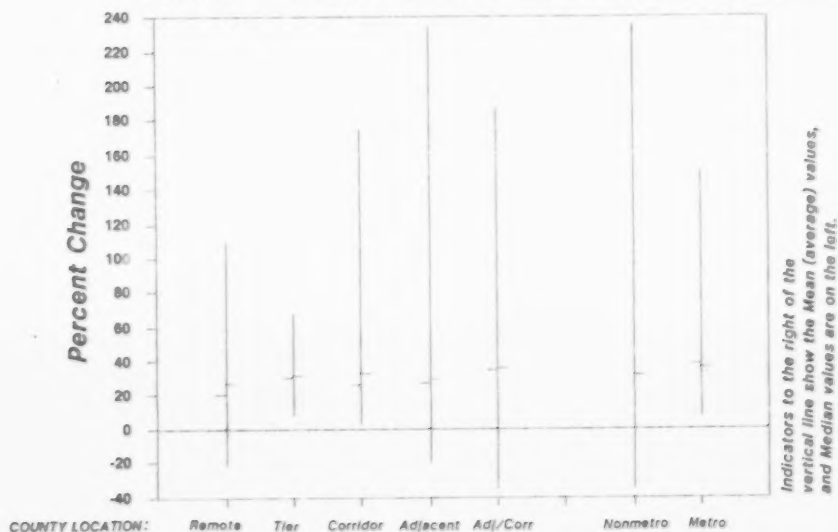


Texas
1977 to 1982

CHANGES IN EMPLOYMENT by County Location

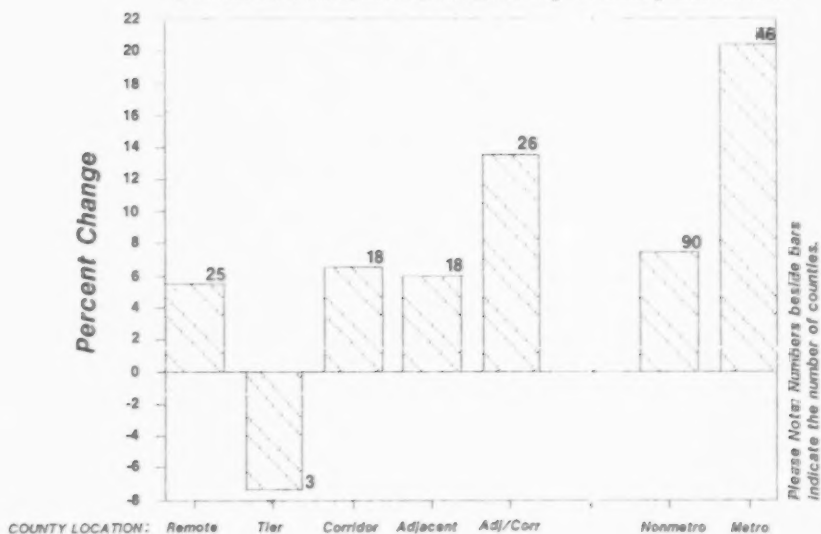


RANGE OF EMPLOYMENT CHANGES by County Location



Virginia
1977 to 1982

CHANGES IN EMPLOYMENT by County Location



RANGE OF EMPLOYMENT CHANGES by County Location

